EXPLORING MOTIVATIONS AND PERCEPTIONS OF SMALL-SCALE
FARMERS: CONSIDERATIONS FOR SUSTAINABLE AGRICULTURE IN EAST
CENTRAL INDIANA

A THESIS
SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE
MASTER OF SCIENCE

BY
SAMANTHA GROVER
DR. JOSHUA GRUVER
BALL STATE UNIVERSITY
MAY 2013
ABSTRACT

THESIS: Exploring Motivations and Perceptions of Small-scale Farmers: Considerations for Sustainable Agriculture in East Central Indiana

STUDENT: Samantha Grover

DEGREE: Master of Science

COLLEGE: Sciences and Humanities

DATE: May, 2013

PAGES: 134

This study employed qualitative research methods to explore the motivations, perceptions, and regional contextual factors that influence the management decisions of small-scale farmers in East Central Indiana (ECI). In-depth, semi-structured interviews with 15 key informants and 29 farmers were recorded, transcribed, and coded using content analysis to understand the factors most relevant to small-scale farming in the region. Several important themes and subthemes arose in the data related to farming motivations, barriers to farm sustainability, and farmer learning and education. The results of this study complement the findings of previous work that describe the complex framework farmers navigate when making decisions on the farm. Still, this study identifies subtle regional factors (i.e., market conditions, farming culture, local economy) that significantly impact farmers’ decisions, and emphasizes the importance of local context in crafting agricultural policies and outreach efforts. Implications and recommendations for East Central Indiana are discussed.
ACKNOWLEDGEMENTS

To all of the professionals, farmers, and other folks who welcomed me into their homes and offices: I could not have completed this work without your valuable insights and opinions. I am stunned at the warmth and generosity you have shown me by offering me your time and trusting me with your stories.

I owe a debt of gratitude to my advisor, Dr. Josh Gruver, for navigating me through the research process and helping me to explore my own strengths and interests. I have valued your feedback and advice, as well as our many office visits spent problem solving and decompressing during the research process.

I am also thankful to my thesis committee members, Dr. Brian Lepore and Dr. James Eflin. I have enjoyed your continued support in my research, as well as all that I have learned from your critiques and ideas.

Finally, I could not have completed this thesis without the encouragement of my husband, Joe. Thank you for all the time spent reading my drafts, bouncing ideas, and being a positive motivator.

I am sincerely grateful to all of the people who helped me to complete this thesis- it has been a challenging, fun, sometimes frustrating, and truly enlightening journey.

Thank you.
# TABLE OF CONTENTS

ABSTRACT 2

INTRODUCTION 5

LITERATURE REVIEW 8

SMALL-SCALE FARMERS IN THE UNITED STATES 8

WHAT INFLUENCES MANAGEMENT DECISIONS ON THE FARM? 13

THE IMPORTANCE OF PLACE-BASED RESEARCH 23

SMALL-SCALE FARMING IN EAST CENTRAL INDIANA 25

METHODS 28

RESULTS: KEY INFORMANT INTERVIEWS 33

RESULTS: SMALL-SCALE FARMER INTERVIEWS 53

DISCUSSION 97

CONCLUSION 113

REFERENCES 117

APPENDICES 123
INTRODUCTION

Smallholders are one of the largest and fastest-growing segments of the farming population in Indiana and in the United States (U.S.) as a whole. Smallholders make valuable contributions to culture, rural economies, and environmental sustainability, yet agricultural research is disproportionately devoted to the needs of conventional, larger-scale production agriculture. Little is known about the factors that influence decision-making on small, diversified family farms, especially within specific regional contexts. In Indiana, there has been a call among agricultural professionals to better understand the perspectives and management decisions of small farmers to improve outreach efforts among this growing farm population.

Background

In population terms, small farms are by far the largest segment of all U.S. farms (USDA 2007). In addition, most of the growth in farm numbers in the U.S. currently comes from small farms. Smallholder farmers hold and manage a significant amount of the nation’s farmland, meaning they are important stewards of precious natural resources (e.g., soil, water, etc.). Small farms also provide vital economic, social, and environmental benefits to society. Because small farms are more likely to practice and promote sustainable agriculture than large farms (D’Souza & Ikerd 1996; Tavernier & Tolomeo 2004),
smallholder farmers will become especially important in supporting local food systems and maintaining the future viability of our agricultural land and natural resources.

Past research focusing on farmers’ management decisions is useful in providing guidelines for future research, but it is limited in significant ways. Many efforts have been made over past decades to understand why some farmers choose more sustainable production methods than others. A large number of researchers (Gould, et al. 1989; Soule, et al. 2000; Westra & Olson 1997) have attempted to link demographic and farm variables with conservation decisions, but there has been little, if any strong agreement in results across multiple studies (Knowler & Bradshaw 2006; Prokopy, et al. 2008). Other researchers have investigated the more in-depth motivational and attitudinal aspects of farmer decision-making (Petrzelka & Korschning 1996; Salamon 1992; Sassenrath 2010). Although these studies provide a clearer picture of farmers’ complex decision-making processes, this research has also been inconsistent, largely due to differences in contextual factors such as location and individual farmer circumstances. Given the disparities across the literature regarding farmer decision-making, authors suggest that more regional, context-specific research be conducted and used to implement conservation initiatives at the local level (Ahnström, et al. 2008).

Most research up to this point has been focused on the needs of larger-scale, conventional farmers, while the needs of small farmers have gone largely unaddressed. Inconsistencies in past research highlight the need for more placed-based research that preserves important contextual factors and allows for direct application by regional agricultural professionals. Recent calls by agricultural professionals in Indiana to better serve small farmers exemplify the need for more regional research. This research intends
to fill some of these research needs through a comprehensive, exploratory study of smallholder farmers in the East Central region of Indiana.

Research Questions

Broadly speaking, this study sought to explore the question of what it means to be a smallholder farmer in East Central Indiana. Through in-depth qualitative inquiry, this study more specifically investigated the following questions in the context of East Central Indiana: What are smallholder farmers’ attitudes and motivations toward farming and sustainability? How are those factors related to management practices and on-farm sustainability? What are the barriers in regard to sustainable management on small farms? What is the importance of regional context in farming decisions?

This study does not seek to generalize the views of East Central Indiana farmers to those of all smallholder farmers. Rather, this study seeks to enhance understanding in the research community of the context-specific factors that shape the decisions of smallholder farmers. In light of the lack of consensus in previous research, this study takes a practical approach, conducting qualitative research to understand the full range of factors guiding the decisions of small-scale farmers. Although the intention of this study is to serve the communities of East Central Indiana, our results complement the existing body of work by providing further insight into farmers’ attitudes and motivations toward sustainable agriculture, as well as a framework for considering barriers to sustainability.
LITERATURE REVIEW

The first section of this review outlines the growing contributions of small farms to the U.S. economy and society as a whole, as well as their role in increasing the sustainability of our food systems. The second section reviews current literature investigating which factors are relevant to management decisions on the farm, with critical attention to inconsistencies in the existing body of work and the relative dearth of research in support of small-scale farmers. The next section explains the importance of conducting place-based research to incorporate regional context into agricultural solutions. Finally, the last section gives a basic profile of small-scale farming in East Central Indiana, where the research for this study was conducted.

Small-scale Farmers in the United States

The structure and nature of farming in the United States (U.S.) has changed drastically over the past century. At the beginning of the 20th century, there were over 6 million farms in the U.S., most of them being small, diversified, and located in rural populations where more than half of the U.S. population lived. The industrialization of agriculture and associated technologies following World War II brought increases in efficiency, allowing farm size and productivity to grow throughout the latter part of the century. Since 1900, the average farm size has risen 67 percent, while the total number of farms has fallen 63 percent (Dimitri, et al. 2005). Today, farm sizes are shifting to opposite
ends of the spectrum, toward more small and very large farms. However, most of the growth in U.S. farm numbers today comes from small operations (USDA 2007).

Small farms are an extremely important portion of the agricultural sector. In the most recent agricultural census, small farms (farms with sales of less than $100,000 per year)\(^1\) accounted for 84 percent of all U.S. farms. Small farms were also responsible for most of the growth in new farms in the recent decade, with the highest growth coming from farms with sales of less than $10,000. Aside from their significance in terms of numbers, small farms are also important in that they are responsible for managing valuable land and assets (e.g., quality farm ground, ecological assets, building structures, etc.). In 2007, small farms held 40 percent of all U.S. farmland, but accounted for 46 percent of the nationwide value for farm land and buildings, reflecting the higher value of farms with low sales and acreage compared to larger farms (USDA 2007).

Small farms are also of great value to society as a whole. As evidenced by congressional support, there is local and national interest in furthering the continued growth in the number of small farmers and a nationwide shift toward smaller-scale agriculture. For instance, the recently extended 2008 Farm Bill includes programs to support the success of small farms through programs geared toward things such as value-added agriculture, specialty crop production, and farmers market provisions. Congress also established special loans and farm incubator programs that focus on the encouragement of beginning farmers (who are more likely to be small-scale). The

---

\(^1\) The definition of a small farm is somewhat ambiguous. Throughout the literature, small farms have been defined by terms such as land acreages operated, number of livestock units, value of farm output, farm assets, and farm income (Lewis 1978 in Gebremedhin & Christy, p. 59). In more recent years, small farms have been characterized as farms with “limited resources, small volume of farm product sales, family farms, retirement farms, and part-time farms” (Gebremedhin & Christy 1996, p. 59).
National Institute for Food and Agriculture (NIFA), a branch of the USDA, has appointed a National Commission on Small Farms since 1997 that provides funding opportunities for research and education in support of small farmers. Yet, with irresolution in legislation over the next revision of the Farm Bill, small farmers are likely to need additional support from the local level given their increasing numbers and uncertainty in continued funding for supportive programs. Small farms help to support and maintain rural communities because the profits from small-scale producers are more likely to stay in the local area and create multiplier effects in the economy (Horrigan, et al. 2002).

Small farms also compose an important part of the social fabric of rural America by contributing to culture and tradition. As confirmed by the USDA, small farms “promote self-empowerment and community responsibility; provide places for families to pass on values of hard work and responsibility; and provide a human connection to food and the earth” (NCSF 1998, p. 18-19).

Perhaps out of a growing dissatisfaction with the current food system, consumers are demanding more locally and sustainably produced foods, as evidenced by rising sales of organic products and an increasing number of farms marketing products through Community Supported Agriculture (CSA) (USDA 2007). Retail sales of organic foods have risen exponentially in the past decade or so, from a value of $3.6 billion in 1997 to over $21 billion in 2008 (Dimitri & Oberholtzer 2009). Additionally, in the most recent agricultural census, there were over 12,500 CSA farms in the U.S. (the first year official USDA data are available for CSA farms) (USDA 2007). The public is becoming increasingly aware of issues such as animal welfare, worker safety, and resource conservation, and is demanding more accountability on the part of the farmer (Reganold,
et al. 2011). By shopping through farmers markets, CSAs, and other local channels, customers have direct contact with the producers of their food, and can more readily gain this accountability. Encouraging the development of local food systems has become increasingly important to the national agenda, as evidenced by recent federal initiatives such as the USDA’s “Know Your Farmer, Know Your Food” program, launched in 2009 to bring together regional stakeholders to promote regional efforts and share resources. Since small family farms already account for nearly all of direct-to-consumer sales, they are likely to play an even larger role in the food system as consumers continue to demand more local products. On the whole, the American public tends to disapprove of the conventional, industrial farm structure, and instead supports the more alternative structure of small and family farms (Fulkerson 2008). Given these trends, combined with the realization of the need for a more sustainable food system (Gomiero, et al. 2011), the role of the small farmer is likely to increase a great deal in upcoming years.

From an environmental perspective, it is important to support small, diverse farms because of the benefits they provide over the larger, more conventional farm structure in terms of sustainability. There is a positive relationship between small farms and sustainable agriculture (Tavernier & Tolomeo 2004); that is, small farmers use their land less intensively than large farms and rely more heavily on conservation practices (e.g., conservation tillage, IPM, organic, etc.) (D’Souza & Ikerd 1996). At the same time, small farms can actually be more productive than large monoculture farms, averaging much higher food yields per acre, especially if measured in monetary terms. These higher yields are made possible because small farms tend to make more efficient use of natural resources such as biodiversity, water, and land, allowing them to increase output with less
environmental impact. Of course, the focus small farms tend to have on diversity also puts them in a position of increased resilience to unpredictable seasonal weather patterns, as well as long-term climate change trends (Altieri 2009). Furthermore, the overall goals of small-scale farming are more consistent with the properties of sustainable agriculture than those of large, industrial farms. Small farms, for instance, are more likely to emphasize the maintenance of community, production and economic systems, biodiversity, and intergenerational welfare (D’Souza & Ikerd 1996). This is not to say that small farmers are necessarily more altruistic in their management than larger farmers. In some ways, it may actually be more difficult for larger farmers to make decisions to adopt more sustainable practices. McCann and others (1997) suggest that the higher debt burdens experienced by larger-scale farmers may make them more concerned about profitability and more averse to the risks of trying new or different sustainable farming practices, especially when the practices require long-term commitments. Still, some argue contrarily that the small farm structure may be undesirable. Deller and others (2003) posit, for instance, that small farms do not contribute to local economic growth as much as commonly perceived; rather, a healthy rural economy is necessary to support small farms. Concluding that a reliance on small farms in rural areas may actually retard economic growth, the authors suggest that our efforts to preserve the small farm structure for economic reasons may be misguided. However, there are several problems with this type of argument. For one, the Deller, et al. (2003) study focused largely on production agriculture, rather than on small, diversified systems, whose products are more likely to stay primarily within the rural economy, rather than being destined for commodity markets. Additionally, like many arguments of this type, little to no economic
consideration is taken for the external benefits associated with small-scale systems, such as cleaner water, healthier food, and increased community interaction.

Despite the recognized importance of small farmers, most previous research in agriculture has been devoted to the production of crops, technology, equipment, and education best suited to the needs of capital intensive, large-scale farming. Furthermore, agricultural support programs have tended to favor large-scale farms, while the needs of small-scale farmers have been largely overlooked (Gebremedhin and Christy 1996). Farm Bill subsidies, for one, are regularly criticized for promoting the dependency on a few crops or products typically associated with conventional, large-scale agriculture, and being less geared toward more diverse, sustainable systems more often associated with small-scale agriculture (although a few programs are directed toward small-scale agriculture, the bulk of resources favor the large-scale, commodity structure) (McCann 2012; Reganold, et al. 2011). There have been noted improvements in recent years, such as the NIFA’s Small Farm Program, which aims to “enhance the economic viability of all small farm and ranch enterprises, and promote research, extension, and education programs” for small farms (USDA 2009). However, despite these advancements, progress has been lagging, and support for small, diverse farms remains inadequate. In order to best allocate these resources, and because of the contributions small farmers make to the sustainability of our communities and environment, it is vital that we better understand the factors influencing their management decisions.

What influences management decisions on the farm?

There is a large body of literature attempting to characterize factors related to conservation decisions on the farm. Many studies have linked conservation decisions
with specific demographic and farm characteristics, but there have been few if any variables that consistently explain the adoption of conservation practices (Knowler & Bradshaw 2006). For example, although both Gould, et al. (1989) and Soule, et al. (2000) found farmer age to be significantly and negatively related to the adoption of conservation tillage practices, Westra & Olson (1997) found no significant relationship regarding age or any other commonly cited variables such as tenure, education, farmer experience, and debt level. Likewise, in a study including a wider range of sustainable agricultural practices, Alonge & Martin (1995) found similar variables such as age and education to be poor predictors of adoption. The relationship between conservation practice adoption and other variables such as farm type and capital is equally perplexing (Prokopy, et al. 2008). Using a vote count analysis of results from literature focusing on the adoption of best management practices (BMPs) in the U.S. over the last 25 years, Prokopy, et al. (2008) found that although some variables (e.g., age, education, income, access to information, environmental attitudes, farm type) more often than not correlate with the adoption of BMPs, there are no unifying variables that predict farmers’ conservation decisions. Even when correlations were found between variables across several studies, relationships were not very strong, and there were always exceptions to the trend. In another review of the literature regarding the adoption of conservation agriculture, Knowler and Bradshaw (2006) found that once contextual factors such as study locale and method were controlled, the adoption of conservation practices could not be adequately explained by any variable.

This lack of consensus in research over the past decades suggests that a deeper understanding of the factors guiding farmer resource management decisions is needed.
Since demographic and farm characteristics have been inadequate in explaining farmer conservation behavior, researchers have explored some of the deeper forces that influence management decisions. Farmer motivations, attitudes, and perceptions, although more difficult to measure than some of the previously mentioned variables, are important drivers of farmer decision-making (Alonge & Martin 1995). Several studies have explored farmers’ motivations for choosing whether to adopt sustainable management practices (Chouinard, et al. 2008; Ryan, et al. 2003; Sassenrath, et al. 2010). Throughout the literature, farmers are often described as being profit-motivated, making rational decisions based on their own economic best interest. According to this line of thinking, farmers will only make decisions to implement conservation practices if they foresee a tangible economic benefit. On the other hand, farmers are also described as stewards of the land, making conservation decisions based on a sense of responsibility, a love for nature, and to promote the longevity of farming as an occupation and a lifestyle. Some more contemporary authors, while ultimately describing farmers as utility-maximizing, include provisions for other benefits such as ecosystem services, health, and well-being in their equations, making the farmer’s decision-making processes complex and multi-faceted (Bowman & Zilberman 2011). Perhaps not surprisingly, research has found both economic and non-economic factors to be important. Bullock and others (1997), for example, found family factors to be extremely important in farmers’ motivation for the adoption of sustainable systems. In their study of Illinois farm families, sustainable systems were more likely to be adopted when there was a tradition of innovation and experimentation within the family, if the family experienced a health or environmental trigger, and if the family placed importance on practicing prudence with resources.
Alternatively, barriers were found to the adoption of sustainable systems when there was a lack of family consensus, and when there were community pressures to follow a more conventional model of agriculture. Other studies have also described farm succession as an important family factor, finding that farmers who could not identify an heir practiced a more static management technique than those who had an heir (Inwood & Sharp 2012). Of course, other non-economic motivations are also important. Farmers describe gaining personal benefit from independence, working outside and being close to nature, acting as steward for the environment, and interacting with the community, among other things (Ahnstrom, et al. 2008). Still, although farming is often described as a “lifestyle choice” based on non-economic factors, it is also a business, and thus cannot be completely separated from economic motivations and the need to make a living. That is, although farmers may be motivated by a sense of stewardship, adopting conservation measures is also a business decision, and thus must be practical and cost effective to the farmer’s operation to be successful (Luloff, et al. 2012). Schoon and Grotenhuis (1999) describe farmers as either being idealistically motivated (motivated primarily by non-economic factors) or pragmatically motivated (motivated primarily by the continuation of the farm as a business); although, realistically, there is probably a spectrum along which farmers align. Although economic decisions are a vital component in on-farm decisions, motivational studies stress overall that farmers balance a number of factors when trying to achieve “good practice” on their farms (Karami & Keshavarz 2010, p. 27).

There is also a strong relationship between farmer attitudes and their behavior in regard to resource management decisions. Not surprisingly, farmers are more likely to adopt sustainable management practices if they have a positive attitude towards
stewardship and the environment (Lynn, et al. 1988; Sullivan, et al. 1996); thus far, researchers have yet to find a negative relationship between favorable attitudes toward the environment and the adoption of conservation practices (Prokopy, et al. 2008). Furthermore, farmers are more likely to adopt more sustainable methods if they value the off-farm benefits of conservation practices (Reimer, et al. 2012), and if they have favorable attitudes toward the community (Petrzelka & Korsching 1996). Conversely, farmers may be less likely to adopt sustainable management practices if they have favorable attitudes toward economic rationality and conventional farming methods (Petrzelka & Korsching 1996), and if they have stronger beliefs in technology (Lynn, et al. 1988). However, it is vital to note that attitudes on their own cannot accurately predict behavior. Attitudes are simply a predisposition to act in a given way (Karami & Keshavarz 2010, p. 26); even if farmers have a positive environmental attitude, in order to actually adopt an environmental behavior they must also be aware of the practice, believe it is feasible, and find it consistent with their goals (Pannell 1999). Recent authors have drawn attention to the limitations in many attitudinal studies in that they do not recognize the full range of environmental management strategies that can exist among farmers in relation to their attitudes (Welsh & Rivers 2011). That is, although two farmers may have nearly identical environmental attitudes, they may choose to act differently in accordance with their farm structure and management styles.

Farmer attitudes are also very complex. Karami and Keshavarz (2010, p. 28) place attitudes within a theoretical framework of farmer behavior, depicting attitudes as bound partly by gender norms and influenced heavily by religion and spiritual values, access to information, attitudes of nearby reference groups, quality of life, and personal
characteristics. Similarly, a model produced by Ahnstrom and others (2008) describes farmer attitudes and perceptions as being influenced by nature, agri-environmental schemes, subjective norm attitudes (similar to Karami & Keshavarz’s “attitudes of nearby reference groups”), and, perhaps most importantly, the “context box” (Ahnstrom, et al. 2008, p. 43-44). Farmers, the authors argue, shape their perspectives and attitudes based on the way they perceive the context in which they operate. Factors such as education, economics, extension, farm history, and the existence of farm heirs make up the context box and act not only upon the farmer directly, but also affect the larger norm attitudes and the way agri-environmental schemes are (and should be) designed. Still, attitudes are dynamic and can change with time and as contextual factors change. The fault in most attitudinal studies is that they often simplify the nature of farmer attitudes (Reimer, et al. 2012), and in attempting to describe simple correlations, they fail to account for the multitude of factors that influence attitudes. Specifically, most studies do not adequately recognize the importance of location and individual farmer circumstances in shaping attitudes and decision-making (Ahnström, et al. 2008).

Farmer decisions are further affected by the presence or perception of external and internal constraints. Because behavior toward sustainable agriculture is bound by real or perceived control factors that can either limit or enhance the adoption of sustainable practices (Karami & Keshavarz 2010, p.29), farmers’ perceptions of constraints (and opportunities) may be equally important to the actual existence of constraints. Bowman & Zilberman (2011) describe several constraints that affect how attractive farmers find the adoption of diversified farming systems. Dependent, of course, on specific locale, biological and geophysical characteristics can make the adoption of sustainable systems
more or less attractive. Policies and regulations, while having some nationwide application due to federal policies, also have more location-specific impacts due to the existence of more localized agricultural policies. And, depending on their structure, these policies and regulations can act in either a positive or negative direction for environmental behavior. Bowman & Zilberman (2011) particularly note the influence of market conditions as an important constraint. Price levels, consumer willingness-to-pay, transportation and supply chain transaction costs, and labor markets are all factors that can work to induce or deter farmers from adopting more diversified (and sustainable) systems. Along similar lines, Duram, in her study of Illinois organic farmers, describes constraints in terms of structures (defined as factors that act to limit human action) (2000, p. 36). Farmers viewed some political structures, such as the (onerous) organic certification process, as restricting their ability to adopt organic production practices, whereas some economic structures, such as the market price of organic goods, were viewed more positively. By exploring farmers’ perceived barriers to organic agricultural production, Duram found that farmers’ decisions are both limited and augmented by political, economic, social, and ecological contextual factors. That is, farmers operate within a context-specific set of conditions that can delimit their range of options for decision-making on the farm. Of course, these conditions are both significant and specific to the particular regions in which farmers operate; therefore, it is vital to explore the external constraints and opportunities within specific regional contexts for the most efficient application of agricultural policy.

One constraint worth considering in more detail is the presence and perception of risk in agriculture. Risk occurs when the uncertain outcome of a decision has the
potential to either adversely or positively impact the decision-maker (Robison & Barry 1987). Because of the inherent uncertainties in farming and because of the nature of farming as an independent business, the perception farmers hold in regard to risk and risk management can have a significant impact on their management decisions. In general, theory suggests that individuals who are less risk averse are more likely to take risks and experiment with new technologies than more risk-averse individuals. In farming, this idea can also be applied to the adoption of conservation measures and alternative farming techniques. There are two schools of thought in regard to the effect of risk aversion on conservation behavior. On one hand, risk averse farmers may be hesitant to give up short-term gains for the benefits of conservation measures; on the other hand, risk-averse farmers might be expected to invest in conservation measures to avoid the chance of a long-term productivity declines. Conversely, individuals who are less risk averse would be more willing to take a chance on long-term productivity decline, and perhaps more faithful that future technologies will develop to offset present losses (Ervin & Ervin 1982). Although focused disproportionately on conventional farms, previous studies suggest that farmers perceive some of the most prominent sources of risk to be changes in government laws and regulations; decreases in crop yield or livestock production; uncertainty in commodity prices; changes in consumer preference; lawsuits; and the ability to adopt new technologies (Szekely & Palinkas 2009).

Risk is also thought to differentially affect farms based on their structure. As they become more specialized, large farms are better able to achieve economies of scale, improvements in production efficiencies, and higher output price and/or lower input prices compared to small farms. Alternatively, small farms are likely to have less wealth
and have greater income variability than large farms, making them more vulnerable to risk (Barry, et al. 2000; Mishra & El-Osta 2002). Furthermore, agricultural policies such as price supports have reduced the risk of crop specialization, encouraging economies of scale to conventional agriculture and contributing to the overall rise in farm sizes and decrease in diversification over recent decades (Dimitri, et al. 2005). Small, diversified farms have received far less support in terms of risk management policy. Risk theory suggests, then, that larger farms would be more likely to engage in conservation activities; and some research has found this to be the case when comparing standard conservation behaviors across conventional farms (Epplin & Tice 1986; Gould, et al. 1989). Yet, small farms are more likely to diversify their operations and engage in other types of ecological management less commonly measured in such studies. Still, there is a dearth of research exploring risk factors on small, diversified farms.

Geographic location can also play an important role in vulnerability to risk, as well as risk management. For instance, in their study of Illinois farmers, Barry, et al. (2000) found significant differences in income variability between farmers in the southern and north-central regions of the state, suggesting that risk has strong ties to location, perhaps because of related factors such as soil productivity, crop yields, and operator age. Mishra and El-Osta (2002) suggest that risk management, measured in terms of diversification, also has regional aspects. Better quality soil in a region, the authors hypothesize, may make the farmer more inclined to try new crops or enterprises. The authors also find other geographic aspects, such as the farm’s proximity to urban
areas to be an important factor in risk management decisions\(^2\). Such evidence suggests the importance of investigating regional context in the discussion of risk and other constraints to decision making in agriculture.

Still, although risk is related to structural and regional variables, the perception of risk is intrinsically tied to motivational aspects of farming and must be considered within the circumstances of the individual farmer. Depending on their motivations (e.g., whether they have a more or less economic orientation to farming), farmers may be more or less willing to take on economic risk. For instance, in a study comparing organic versus conventional farmers, McCann, et al. (1997) found that while both types of farmers were concerned with the economic risks of farming, organic farmers reported a greater concern with long-term sustainability and showed a greater willingness to take on risk to gain future benefits. Organic farmers were found to have a greater awareness and concern for environmental problems associated with agriculture and were more likely to risk a decrease in yield to use a more environmentally protective method. Thus, the economic risks of adopting new conservation measures are balanced according to the motivations of the individual farmer and can affect the level to which farmers feel they can diversify their farms and experiment with more sustainable farming practices. The perception of risk, then, must be considered alongside the motivation for farming to more completely understand management decisions.

\(^2\) The authors found proximity to urban areas to reduce risk diversification. As a possible explanation, the authors point out that farmers living near urban areas are more likely to work off-farm, and thus less likely to have time to diversify their operations and instead focus on niche items.
The Importance of Place-based Research

The existing body of literature has been very useful in identifying some of the important factors that influence farmers’ management decisions. However, most of this research is also limited in significant ways. As noted earlier, the bulk of research up to this point has primarily been focused on larger-scale commodity production agriculture, while few studies have focused on small, diversified family farms. At the same time, small farms may need additional support because of the barriers they experience in terms of technology and resource endowment, farm credit financing, farm input prices, market structures, off-farm employment, and a deficiency in government support programs (Gebremedhin & Christy 1996). Past and recent research concerning the relationship between demographic and farm characteristics and management decisions has been scattered and inconsistent. Although uncovering these more quantitative relationships could make targeting programs and policies more efficient, few if any variables have been found to accurately predict farmer management behavior, even after decades of research. Motivational and attitudinal studies have provided critical insight into some of the less tangible reasons for on-farm management decisions. However, these studies often have too narrow a focus and fail to consider barriers and opportunities that may be affected by the larger regional context.

Agricultural scholars suggest that efforts to promote a more sustainable agriculture will need to be tailored according to the conditions of individual locales (Knowler & Bradshaw 2007). One logical reason to focus on regional efforts is that environmental impacts are not distributed equally across landscapes; farmers can have differential effects on the environment based on their geophysical setting. A farmer using
heavy tillage in a steeply sloped area uphill of a water source would be expected to have heavier impacts from erosion than a farmer using similar practices in a flat area with little rainfall and no nearby water source, for example. Because resource characteristics and environmental problems vary between regions and landscapes, it is especially important to understand farmer behaviors within physical and temporal contexts (Reimer, et al. 2012). Moreover, sustainable agriculture itself is dynamic and place-specific, and must be catered to meet individual climatic conditions (Horrigan, et al. 2002). Other social, economic, and political circumstances also shape regional conditions that help to determine what type of farming systems will be adopted. Comparing the drivers for adoption of sustainable systems in the Northeast versus the Southeast United States, Sassenrath and others (2010) showed that despite strong similarities in motivations among farmers in both areas, key regional factors impacted farmers’ ability to adopt sustainable systems. In the Northeast, for instance, local marketing channels were well developed, whereas in the Southeast, global marketing channels were more prominent. More localized and diversified products were therefore more marketable in the Northeast versus the Southeast, encouraging farmers to adopt more sustainable, diverse systems instead of larger-scale commodity crop systems. Reliance on government programs supporting commodity crops also gave farmers in the Southeast less flexibility to consider producing other crops; although, despite their relatively higher flexibility, Northeastern farmers were subject to more risk because they did not rely on support programs. Thus, farmer characteristics and characteristics of the broader farming community significantly impact the type of system adopted (Bowman and Zilberman 2011), and must therefore be explored within the groups or communities concerned.
Individual farmer circumstances, including location, motivations, attitudes, and multiple other regional factors need to be taken into account when promoting sustainable farm management (Ahnström, et al. 2008). In order to encourage the transition to a more sustainable agriculture system, more place-based, context-specific research needs to be conducted on small, diversified family farms within regions where efforts are to be implemented.

**Small-scale Farming in East Central Indiana**

In the East Central Indiana (ECI) region (see Figure 1), there are roughly 4300 farms, or 78 percent of all farms, that report annual sales of less than $100,000. Half of all farms in the region are fewer than 260 acres in size, and 85 to 95 percent of all farms are operated by families or individuals (USDA 2007). The top crop items produced by acreage are far corn for grain and soybeans for beans. However, a diverse range of other commodities is also produced in the region with notable market values, such as milk and dairy products; vegetables, melons, potatoes and sweet potatoes; grains, oilseeds, dry beans, and dry peas; sheep, goats, and their products; and fruit, nuts, and berries (USDA 2007). This data suggests that many farmers in East Central Indiana are taking advantage of smaller acreages to produce a range of diverse products.

There has been an expressed interest in promoting small-scale, diversified agriculture in ECI in recent years. In an ISDA report following the Agriculture Economic Development Initiative, the ECI Action Team recommended several goals for the region specifically pertinent to small-scale farming: to create an environment that encourages entrepreneurship, contribute to the development of value-added products, work with local media to develop agricultural awareness, develop a better snapshot of county farming
operations, and, particularly pertinent, increasing diversified agriculture (ISDA 2007). More recently, agricultural professionals on the Indiana Small Farms and Sustainable Agriculture team commissioned a feasibility study with a goal to “expand the marketplace for Indiana-raised and Indiana-consumed food” (Aubrey 2012, p.8). Among other things, the study predicts that the market size in Central Indiana is not only large enough to accommodate more specialty crop producers, but that most of the anticipated growth in the specialty crops will come from farms of less than 200 acres (Aubrey 2012). Consequently, the number of small, diversified farms is expected to increase in this region in upcoming years. At the same time, consumer demand for local and organic food has increased in Indiana over the last several years (although at different rates throughout the state), evidenced most strongly by the increase in the number of farmers markets over the last decade. Overall, there seems to be a desire in Indiana to “grow more farmers,” but there is also an inclination that some of the critical infrastructure needed to support this growth may be lacking in the state (Meter 2012, p. 21).

Little is yet known about the producers in ECI who are driving the engines of change in the local agricultural system. With attention to small farms growing at the state and regional levels to increase assistance, it is critical to understand the characteristics, motivations, and perceptions of small farmers within the ECI context in which they operate. A better understanding of the decision-making process for these producers will not only allow for the more efficient allocation of supportive resources, but will also provide insight into the relevant drivers for sustainable management in ECI.
Figure 1. The following East Central Indiana counties were included in this study: Delaware, Madison, Grant, Blackford, Jay, Randolph, Wayne, and Henry. Image retrieved 1/15/13 from http://www.aafeci.org/wp-content/uploads/2009/12/eci_map.gif
METHODS

Study Area and Research Population

Research took place with farmers in East Central Indiana, including the following counties: Delaware, Blackford, Grant, Henry, Jay, Madison, Randolph, and Wayne. These eight counties were chosen based on their geographic proximity to Muncie, Indiana, the center and largest urban area in ECI, as well as the center of the ECI business development unit. For the purpose of this study, small farms were defined by the following selection criteria, which are modified from the USDA definition for “low-sales, farming-occupation, small family farms:” a) farm controls fewer than 260 acres of land, b) a majority of farmland is operator-owned (i.e., not leased), c) ownership structure for the farm is individual or family-owned (related by blood, marriage, or adoption), d) annual farm revenues do not exceed $150,000, and, e) a significant portion of the farm’s output is dedicated to crop or animal products, or both, destined for direct sales to consumers or local food markets (e.g., u-pick operations, farm stands, farmers markets, Community Supported Agriculture (CSA), local groceries or auctions). These criteria were meant to reflect current and predicted trends among smallholder farmers in the United States, and also include a focus on locally based food production.
**Data Collection: Key Informant Interviews**

Qualitative methods have an important role in the field of agricultural human dimensions research. Recent authors have drawn attention to our limited knowledge of human behavior in agriculture, citing the limitations of survey data to provide insight into the complexities of the social side of agriculture (Karami & Keshavarz 2010; Prokopy 2011). This study employed qualitative research methods to gain a deeper understanding of the perceptions, motivations, and management practices of smallholder farmers in East Central Indiana. The ECI region is also an area in which the researcher resided, providing an opportunity to spend extended time in the field. Additionally, familiarity with the area allowed the researcher to develop a fuller understanding of regional context, and also aided in gaining access to the research population.

Data were collected over the five-month period from May through September, 2012. The researcher conducted 15 interviews with key informants (community members who are especially knowledgeable about a given topic because of their involvement in that topic area) in East Central Indiana. Interviews ranged from 30 minutes to three hours in length, and were audio-recorded and transcribed verbatim by the researcher. Key informants were identified based on their positions in the community or within organizations, their reputations, or the fact that they were described by others as knowing a lot about smallholder farming in East Central Indiana (Elmendorf and Luloff 2001, p. 142). These key informants included professionals from the following agricultural organizations: Purdue Extension, Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA), Indiana State Department of Agriculture (ISDA), Soil and Water Conservation District (SWCD), and Indiana Farm Bureau. Additional informants
included longtime community members, market masters, and those identified as leaders in the small-scale agriculture community. Informants were selected for their relevant experiences in the ECI region, but several also provided a statewide, or even nationwide perspective. These key informants were essential in building an understanding of the regional context and social realities in which farmers were embedded (see Appendix I for key informant interview protocol). Key informants were also used to gain initial access to the population. Toward the end of the interview, key informants were asked to identify potential interviewees based on informants’ knowledge of the farmers’ eligibility (according to selection criteria) and willingness to participate in an interview. This method of chain referral (Biernacki & Waldorf 1981) was also used to draw on farmers’ knowledge of additional potential interviewees. Drawing from multiple informants in this way controlled for potential bias within the purposefully selected population and collected a range of perspectives to best understand and represent the study region. Prior to data collection, the researcher also drafted a list of preconceived ideas about the study region based on time spent living and working in ECI in order to disclose potential biases in the research (see Appendix VII).

Data Collection: Farmer Interviews

Using the researcher as a key instrument (Creswell 2009), data were collected through in-depth, face-to-face interviews with smallholder farmers in East Central Indiana. An effort was made to interview farmers from all eight study counties. Participant selection was purposive so as to maximize the diversity of stories and experiences represented by small-scale farmers in the ECI region. Every attempt was made to achieve a diversity of farmer experiences, farm types, farm sizes, and geographic characteristics. Interviews
were audio-recorded and/or documented with detailed notes by the researcher and lasted between one and two hours. Based on standards set by previous qualitative research in the agricultural field (Reimer, et al. 2012; Zwickle, et al. 2012; Duram 2000) 33 total interviews were conducted with farmers, until saturation (the point at which no additional relevant information surfaces from further interviews) was reached. A semi-structured format was used to maintain objectivity while allowing the researcher flexibility to explore topic areas further as they became relevant (see Appendix II for farmer interview protocol). Following the emergent nature of qualitative research, interview questions were adjusted as themes began to arise in the research identifying the most salient topics related to smallholder farming in East Central Indiana. At the end of the interview, farmers were also asked to complete a short demographic questionnaire to provide additional background and contextual information (see Appendix III).

The results of this research are also associated with a larger study examining the relationship between soil management and social characteristics of farmers. Farmers were asked to complete a questionnaire regarding their perceptions and management techniques in regard to soil, and soil samples were taken at each farm (See Appendix VI for soil questionnaire). The results from that aspect of the study are beyond the scope of this thesis and will not be discussed in this text.

Analysis of Interview Data

Interviews were transcribed verbatim, with notes typed for interviews in which farmers did not consent to be recorded. Content analysis was used to code transcripts according to individual units of meaning concerning smallholder farming in the data. Codes were then organized into relevant themes, which identified commonalities across interviews. To
reduce researcher bias and increase validity in this study, peer debriefing was used to provide a second or third perspective in the analysis, and thick description and direct quotations accompany theme analysis to illustrate the themes.
RESULTS: KEY INFORMANT INTERVIEWS

Key informants were asked questions about the regional landscape of ECI, describing recent changes in the area’s agriculture, barriers perceived for small-scale farmers, sustainability concerns, and educational resources available for small-scale farmers (see Appendix I for KI interview protocol). Additional follow-up questions were explored as KIs guided conversation to topics that they seemed to view as most salient. Interviews lasted between 30 and 180 minutes, with transcripts averaging between 7 and 18 typed single-spaced pages in length.

The following important themes arose from the key informant interviews and will be discussed in detail in the proceeding section: markets; barriers to entry and continued success in small-scale farming in ECI; education; and regional sustainability concerns.

Markets

Key informants almost always mentioned markets in some form as being a prominent barrier for small-scale farmers engaging in local sales of agricultural products. Finding a viable market for local products, or “finding your niche” was often mentioned first among key informants on the list of challenges for small-scale farmers in ECI.

“Trying to find markets for their products [is a big challenge]- finding ways to market their product that doesn’t occupy all their time. You hear them use the terms, “How do I get rid of this product? I can grow it, but how can I get rid of it?” That always disturbs me a little bit. [Frank Attica, Ag. Educator 84-86]
“If you want to do small-scale farming, you almost have to find your niche… And then, I think, along those lines, the niche market means that you’ve got to have a customer base nearby that’s willing to pay the price that you’re probably going to have to have because of the cost of, you know, the land, the labor and all of those other things. We’re pretty used to cheap food in this country… So, if you don’t have a customer base that’s willing to pay a little extra for that, it’s going to be hard.” [Annette Shaw, College Ag. Instructor 82-89]

Annette’s statement about niche marketing also draws attention to another aspect of marketing challenges in East Central Indiana according to KIs, which is a low willingness to pay for locally produced food on the part of consumers. KIs also perceive that while on face value, consumers may be supportive of locally produced foods, their support may not translate into actual sales.

“It’s lots of lip service- it’s all good. They may not support it financially, but if you ask them, they’ll say, oh yeah, it’s a great thing.” [Melissa Knight, Conservation Educator 120-121]

“Many people believe it’s a good idea in theory, but that doesn’t necessarily translate into practice… In theory, yeah locally grown, sustainably grown is wonderful. There are some people who do it because they believe in it, but in terms of it catching on in a real wholesale way with the general population, we’ve got a long, long way to go. ” [Tom Carlson, Experienced Farmer and Community Leader 356-366]

Although many KIs also point to ECI’s proximity to fairly large metropolitan areas as a market opportunity for small farmers, the immediate ECI area is described as primarily rural and composed of a customer base with lower incomes and less interest in purchasing local foods. Several KIs explained that ECI once had a strong manufacturing industry, but had recently witnessed an exodus of most of the major manufacturing facilities in the last decade. Consequently, employment along with income levels plummeted. KIs often attributed the lower willingness to pay on the part of consumers to a lack of education and a lack of strong economy.
“In the more affluent areas, people want [local/organic foods]-the consumers I call the Carmel housewives…. And then you’ve got the college towns, where the wealth factor is not as important, but it’s still there. After that, in rural areas, people don’t differentiate between organic, natural, and regular, and they are not willing- or they may be able to tell you the difference, but they don’t want to pay the price differential.” [Chester Nielsen, State Ag. Professional 434-432]

“The farms that have managed to succeed, the little ones, have found a niche and in their case, being close to a metropolitan area is a bonus because they are able to use farmers markets and hit up the urbanites who don’t want to or don’t have the space to grow their own… And that is a good thing that we do have a huge metropolitan area close. Muncie is still predominantly blue collar, so all those folks don’t buy and shop as much.” [Melissa Knight, Conservation Educator 102-104, 136-140]

“I would say [consumer attitudes toward local foods] are fairly dependent on education and income level. This region I don’t perceive as being… We’re kind of on the lower income, I guess, especially with loss of jobs over the last few years. So I think cost is really a big factor. I don’t really think there’s the interest here that there would be in other places where there’s more income… In rural areas it comes down to cost, and they may not be willing to pay more just because it’s local.” [Shawn Rossville, State Ag. Professional 157-165]

On the more positive side, key informants acknowledge a recent growth in the market for local foods over the last decade or so in ECI, along with a growing (albeit, still limited) consumer awareness and demand for local food products. Along these lines, KIs often pointed to the rise in the number of farmers markets and agritourism activities in the area as a sign of growth in the local food system.

“I think we’re also seeing a market customer change where they desire to know who the producer is, where their food came from, and they want to buy locally. They want to buy these products locally. They like to experience it. They want to go out there and talk to the orchard owner and say, how was the crop, and those things. There’s a big interest in it, and that’s been growing for years.” [Kevin Witt, Ag. Educator 146-150]

“I’d say there is a bit of a deficit of people embracing it in ECI, but I think that there’s more awareness that it’s kind of growing. Slowly, but surely. And I’m trying to get my finger on the pulse of that.” [Arty Roehl, Ag. Educator 127-130]
Still, informants suggest that compared to other parts of the state, ECI is relatively new to the local and organic foods movement. In this area, say informants, there is still limited knowledge about Community Supported Agriculture (CSA), as well as other direct marketing avenues. ECI, they say, has been slower to adopt the local foods model than other areas.

“Here in the Midwest, people are slow to change. And people being slow to change in terms of consumers, I mean… Obviously this is the ideal region to be growing just about anything, but there are not large numbers of small-scale sustainable ag. operations on every street corner. So, there’s that on the consumer side, but there’s also that on the farmer side. Most farmers are, you know, corn, soybeans and wheat is what we do, we don’t do anything different.” [Tom Carlson, Experienced Farmer and Community Leader 66-70]

“I don’t see [ECI] as being as progressive as some of the other areas of the state as far as trends. Organic farming comes to mind. That is one area that I’m just now within the last couple of years maybe getting some inquiries and interest into, whereas I know places like Bloomington and Hancock County, that’s been for the last ten years. It’s been a very prominent part of their local agriculture… So, I would say that was probably within ag, organics, as far as home gardening and that kid of thing, or just garden produce, there’s just not a special interest in it like there is in other areas.” [Candy Larsen, Ag. Educator 43-53]

While informants could not say precisely why ECI has been slower to adopt a local foods model than other areas in the state, several theories arose related to geography, economics, and the history and continuing domination of larger-scale, conventional agriculture in ECI compared to other regions.

“In the southern part of the state, the land is a lot different. It’s more rolling- it’s not the large, flat expanse you find here. And those folks have more of a history of burley tobacco production, so a lot of the folk are more familiar with small-scale plots of land and intensive production… So that seems to convert over fairly well to vegetable and fruit kind of cultural practices, whereas that’s not the case here.” [Frank Attica, Ag. Educator 53-57]

“[Your soil type in ECI] was formed under glaciers, and so it has a pretty typical, what I would call commodity agriculture focus as a result of soil type. Fairly level, and so it’s that cows, sows, and plows thing… Southern Indiana, with the
topography, lends itself a lot more to pastured livestock, beef, cow-calf operations and things, so you see a lot more of that down there. It also isn’t quite as good for cropping, although there are crops down there.” [Ike Lymburn, Ag. Educator 130-134, 154-156]

“Part of the reason that Indiana lagged behind in this whole idea of value-added agriculture, local, all those different acronyms put together in one lump group, is that we had a very narrow basis. We could sell our corn and soybeans, hogs and cattle anywhere in the world because you could ship it up to the port, you could feed it here in state, you could ship it down the Mississippi to the Gulf, or you could ship it east, and to Baltimore even, where it would go overseas to Europe. And so, with that basis being narrower, whereas the farther you get away from Chicago, it gets wider because of the transportation cost, nobody looked at it.” [Chester Nielsen, State Ag. Professional 154-160]

“In this area, I think corn and soybeans are king. And those two crops rule what happens to the land and what happens with those two crops across the world.” [Annette Shaw, College Ag. Educator 32-33]

Several informants also brought up the presence of a small number of Amish-run produce auctions in the area as having an influence on markets for small producers. Some KIs seemed to draw especially on difficulties that arise for producers selling at farmers markets as a result of having auction produce available for sale nearby.

“[O]ne of the big problems you have in this area, and a lot of markets in Indiana-I mean I saw it when I was selling at the Zionsville market, you see at Yorktown, at Minnetrista, and I’m sure all the rural farmers markets that have been popping up over the years. People drive over to near Hagerstown in Wayne County, there’s an Amish produce market. People just drive over there, they buy it from auction, who the hell knows where it came from, and they bring it back to the farmers market… So that’s a challenge because they undercut a lot of people.” [Arty Roehl, Ag. Educator 557-564]

“For individuals who own their own and are trying to do this as a business they get really frustrated because in our area, we have a couple of really large auctions that are over in the Fort Wayne, Berne, Amish country where you can go buy produce and sell it at farmers markets much cheaper than you can ever raise it. I’ve heard it from several people saying they just cannot compete… So not only can they not compete with the large-scale stuff, now they’re having to compete with the community who doesn’t have to pay a lot in taxes, they don’t pay labor, they’ve got the Amish label… And I’m not saying all of them- again, there’s good and bad, and I don’t mean to characterize anybody, but it’s the truth, and it’s what
I’ve been hearing from people in this area.” [Annette Shaw, College Ag. Educator 92-102].

Still, some informants see the nearby auctions as a positive opportunity for small-scale producers that may even allow them to sell and aggregate their goods for larger markets.

“They need to expand their thinking, their minds, and break down the paradigm that it’s only a farmers market model. An auction like the produce auction up in my county and there’s a new one in Adams County and Parks County and there may even be one over in Wayne County... They’re aggregators… So as that hub emerges down there, they need to realize that aggregators can take many forms.” [Ike Lymburn, Ag. Educator 385-397]

Informants describe the topic of resale and market competition as being part of the larger issue of largely inconsistent market regulations. In Indiana, informants explain, there are few, if any, state regulations governing producer rules for sales at farmers markets. That is, it is up to each individual market to decide whether they will require vendors to produce 100 percent (or lesser percentages) of the items they sell at market. Each market is also responsible for its own rule enforcement. There are similar inconsistencies in terms of health and safety regulations for farmers markets. Requirements for health and safety certification vary according to county health departments, which can create complications for small farmers who may sell their products in multiple counties.

“Another thing I think for small farmers is we have to have some kind of regulation on what’s considered a farmers market and what’s considered local… What’s local? Is it in Indiana? Is it within a 2 county area, etc.? I don’t know what the answer is or what people would consider local, but something.” [Annette Shaw, College Ag. Educator 209-307]

“We’ve got 92 counties. I wish we had 30, but we’ve got 92. And each one has their own individual health network/department. So, the guidance comes down and they can interpret it however they want to. And, if you’ve got a beef, there are no appeals. You can’t take it to the state because the state is very, very, very, very, very, very reluctant to overturn any local [decision]. So, small farmer, Decatur County, this is fact. He goes to 5 different counties, 6 different markets. And 4 of
those counties he doesn’t need a permit. 2 of the counties he needs a permit.” [Chester Nielsen, State Ag. Professional 175-181]

“Okay, here’s another challenge for farmers who want to sell at farmers markets. Rules are different from farmers market to farmers market. Some of them- you go from no rules to producer only rules, where if you’re selling there, you have to be the one that made that product. And they’ll enforce it. They’ll have a market manager who will go to the farm and verify. And then like Minnetrista, where it’s basically like the rule is that if you sell at Minnetrista, you have to have produced at least 51% of what you sell, and it’s like what the hell does that mean? How are you enforcing that?” [Arty Roehl, Ag. Educator 551-557]

KIs describe a lack of several types of infrastructure in the region to adequately support and grow small farms. Informants particularly talk about the lack of standards and facilities in place to allow farmers to efficiently sell their products to institutions and other wholesale markets, along with political barriers.

“One thing I would emphasize is that there is a huge need for policy change at a federal level, at a state level, that would level the playing field for small-scale producers that are trying to get into this business… There needs to be the sort of thing that just makes sense. And when they’ve got policies designed that basically swat flies with a sledgehammer… There’s a difference between a small-scale agriculture producer trying to do something on the 25 acre piece somewhere and a multinational corporation that’s got 100s of 100s of beef cows all over in God knows where. There’s a difference. And if we just draft on rule and say this is the rule, it will always be weighted in favor of the large-scale producer.” [Tom Carlson, Experienced Farmer and Community Leader 426-446]

“Some of your better local growers, small farms, your Drew Cleveland of the world, they’re trying to figure out how to get industrial- Meaning, institutional, not industrial. How to get into hospitals, how to get into schools? And Indiana has had a lot of roadblocks.” [Chester Nielsen, State Ag. Professional 55-57]

“Another thing is people who want to do small-scale livestock in this area is access to slaughter facilities. There are some, but not many, and especially if you want to do, like, chickens. It’s not cheap unless you do it yourself, and then you’re limited on how much you can do yourself by regulations, so that’s another challenge… If you want to sell to somebody like a grocer, a larger market, you have to have your birds processed through a state-inspected facility, and it’s not cheap. It becomes cost prohibitive.” [Arty Roehl, Ag. Educator 431-434, 451-452]
Barriers to Entry and Continued Success in Small-scale Farming in ECI

KIs talked about several barriers to entry for farmers in the research area. Almost every informant noted land prices and land scarcity at one or several points throughout the interview. KIs articulated that good farmland is difficult to come by, and inheritance is often the only affordable way to do so. Soaring land prices over the last several decades make it difficult for beginning farmers or farmers wanting to expand their operations to acquire land. Informants cited prices of farm ground in the region ranging anywhere from $5000 to $15,000 per acre, with rental rates also high. KIs referenced development pressure and the division of farm properties as reasons for the rise in farmland prices, expressing a concern for the overall loss of quality farmland in ECI.

“I’ve watched it here. Across the road, there was a field that had its own little rotation over time. Now there’s a house out there. There was a field there [pointing], and now there’s a house there, too. The farm, the dueling place across the tracks, is a great example of what happens to farms. It was sold at auction in 4 tracks of land, 3 of which were not to anybody who farms, I think one a doctor, a couple investors. Chop, chop, chop… The price of land went way, way up because rich city people want some country place to retire to, but they don’t want to do anything with the land. They’re not planning on using the land for what it was used for a generation ago. But they inflate the price out of control to where if a young farmer was wanting to try to get into farming, unless he inherits the land, there’s no way he can pay $5000 an acre and then make anything. By the time he pays taxes and pays for equipment, to be able to even get into an operation. So, in terms of the future, farming is very bleak in terms of large-scale [production].”
[Tom Carlson, Experienced Farmer and Community Leader 119-132]

“In my county, I’ve not seen a farm sold intact in the 18 years I’ve been there. When you have a 300 acre farm coming up for sale, you don’t see it sold in the 300 acres. You see in tract up into 20, 15 acre tracts and sold at auction. And most of the time, those are divided…” [Ike Lymburn, Ag. Educator 175-179]

“Land is a premium always. Until the housing crash, we were being swallowed by development at an alarming rate, to be honest with you. So, farmers here scramble for land more, though we do have several very large commodity grain farmers in [the county]. Most of them, I would say, all of them, are long-time family farms
that have just grown over the generations. Land is so expensive that it’s really the only way to do it.” [Melissa Knight, Conservation Educator 23-28]

Several KIs also explain the rise in land prices in ECI as being a product of the region’s heavy emphasis on conventional production agriculture. The fact that commodity prices are high, say informants, also drives up the price of land. KIs also mention the growth in the ethanol industry in ECI over the last decade and other economic factors as important parts of the equation.

“I think the ethanol industry has really caused people to try farming land that might be marginal for corn. I see land that should be pasture land that people are trying to farm for corn and soybeans. And again, the price of corn kind of rules that. The higher the price, the more land comes out of pasture and woodland and goes into row crop.” [Annette Shaw, College Ag. Educator 68-72]

“Well, a weak dollar has contributed to the jump in land price over the last 4 or 5 years. The ethanol market has certainly been a player. I think [there has been] more demand for corn and soybeans both as a feedstock, as a source of food, and as a source of biofuels.” [Philip Venture, Ag. Educator 54-58]

In regard to land, KIs also described changes in farm structure in our region. Nearly all KIs pointed out the polarization of farm sizes that has occurred over the last several decades. KIs commonly stated that big farms are getting bigger, while small farms are getting smaller. Some informants point to increases in technology and farm equipment as allowing farm sizes to grow so large. According to some KIs, topography may also have an impact on the increase in farm sizes in our region.

“[Farming] has intensified and consolidated greatly. The average size of the farm has grown quite a bit. So, there has been a split or divergence into large farms and small farms. My dad was a 500-acre farmer. It’s hard to find those anymore. It’s really rare to find that middle acreage of 550 to 1000 [acres]. There are some, but primarily, it’s split now into large and small.” [Shawn Rossville, State Ag. Professional 92-95]

“We’ve seen a big ramp up in larger scale operations using more and more technology, whether it’s in large corn and bean operations moving to all the GPS
equipment, larger scale equipment… But, I think it’s, you know, the more and more consolidation, bigger farms, more technology, and fewer people working in those bigger operations.” [Arty Roehl, Ag. Educator 148-154]

“You kind of hear the idea that it’s almost like the rolling ground is more conducive to the smaller farm, the flatter ground is more conducive to the larger farm…” [Chuck Street, Conservation Specialist 91-93]

High capital inputs and start-up costs (including land prices) in general were commonly listed among barriers to entry for farmers of all sizes. The conventional model of agriculture especially, mention KIs, requires large upfront investments in expensive equipment and other farming inputs.

“I don’t know how you would define a full-time farmer, but let’s say to be a full-time farmer, you’ve got to farm 1000 acres. So now, with that in mind, 1000 acres times $3000 an acre to buy it. That’s to buy the land. And then you’ve got to buy a combine to harvest- $250,000. You’ve got to buy a planter- $25,000 or $30,000. It’d be nice to have a tractor. That’s another $100,000. Okay, now the other thing is, now that you’ve bought equipment and land, it costs money to buy the fertilizer and the seed and all that stuff, so there’s another $200 an acre. Okay, now what are you going to live on??? [Chuck Street, Conservation Specialist 592-597]

“I was talking with a realtor the other day who was looking at trying to list this farm [points out window], and he was looking at $5000 an acre. And that’s pretty cheap for this ground… But, say, if somebody wanted to start farming, that’s a big chunk of money. And unless you had something set up with family, or you had a trust or something, I don’t know- there are loans, I know that the FSA and rural development have beginning farmer loans… But land prices, cost in general of equipment, of fertilizer [make it hard to start a farm].” [Denise Woodrow, Conservation Specialist 104-112]

Many informants also perceived labor as an input with which small farmers they know struggle. The type of work done on most of these small farms, they note, is extremely labor intensive. Many KIs describe problems farmers experience with finding skilled laborers who are willing to do the work required in small-scale farming at a wage affordable for farmers to pay.
“Labor is an issue because a lot of this stuff- they just can’t hop on the tractor and go out there and pick. It’s hand-harvested, or they have to use specialty equipment to do it with. And, to be honest with you, it is very hard to find an American who will work in a dirty field. Even the high school kids don’t want to- they want to stay in the air conditioning. So, affordable labor, who’s willing to do the work, is a problem.” [Melissa Knight, Conservation Educator 93-98]

“…You don’t see the labor, the youth labor force like it was when I was a kid, that are willing to work for pennies or a few dollars an hour to bail hay. So, since that labor force is gone and they want to go work at McDonalds instead, they’ve had to develop machines that do the haymaking with a minimum of labor.” [Ike Lymburn, Ag. Educator 203-207]

Time, or lack thereof, is also seen as one of the most common and perhaps most difficult barriers small farmers deal with, according to KIs. Most small farmers, they note, work off-farm jobs, leaving less time for their farm operations. Several KIs also perceive a desire on the part of many small farmers to scale up their operations so they can farm full-time and/or allow other family members to make a living from the farm.

“A lot of [small and beginning farmers] find that a challenge is, how do I get from Point A to Point B- from being a part-time farmer, working a job or two extra jobs on top of that, to being able to farm and focus on that? …If you’re a part-time farmer, it’s a lot of work to do marketing. So time is one factor… Farmers markets are great, but they’re time intensive, labor intensive.” [Shawn Rossville, State Ag. Professional 131-133, 149-151]

“It boils down to the financial aspects. And a lot of it is that many [small farmers] would like to grow their operations to where they can get away from their off-farm jobs, but to do so means they give up insurance and some of those benefits. So is there a way to do so?” [Ike Lymburn, Ag. Educator 257-260]

“One challenge is trying to keep the family on the farm so they’re not all working in town some place and trying to farm in addition to that. Trying to keep the farm active, viable. That’s a big part of it.” [Frank Attica, Ag. Educator 86-88]

Discouragingly, it seems that many KIs do not have a very positive outlook for the potential of small-scale farms to generate a full-time income. Some KIs note that there
are exceptions, but that for the most part, it is tremendously difficult for farmers to “make it” financially without having an off-farm job.

“I mean, most of those folks have off-farm jobs because you just can’t make it. We do have one fella- he’s got about 160 acres. Family farm, left over from the original homesteading days. And he sells every kind of fruit and vegetable and just scratches a living out of every inch of that ground. And they don’t have off-farm jobs. But it is hard to do.” [Melissa Knight, Conservation Educator 124-127]

“We’ve had conversations with some of the other farmers in our area, but it’s just slow to change. There’s not really recognition that [sustainable agriculture] is really even a thing. It’s cute, it’s kind of interesting, but none of them would see this as a viable alternative to what they’re doing.” [Tom Carlson, Experienced Farmer and Community Leader 74-76]

“Now, [one nearby orchard] would be a different story, but they’ve had to do different things to get people in. During October, they sell a bunch of different stuff. But can you survive on selling everything in October? And it’s almost to the point where some of those orchards are starting to go out of business because it’s so highly labor intensive, and they’re not able to maintain that. It’s got to be more of a hobby, a second job type of thing.” [Chuck Street, Conservation Specialist 570-574]

**Education**

Many KIs talked about knowledge as a barrier for farmers in one way or another. Some informants mentioned know-how in terms of marketing or productions practices more specifically, while others spoke more generally. Especially for beginning farmers, KIs say, there can be a generation gap in farming knowledge.

“Knowledge, in some cases [is a barrier.] How do you gain the knowledge you need to become a farmer if you’re not a farmer?” [Frank Attica, Ag. Educator 110-111]

“Obviously, we need more farmers. So, there needs to be more educational opportunities because not as many people are growing up on farms, so they didn’t grow up learning it.” [Arty Roehl, Ag. Educator 359-362]

“Know-how is a big issue because a lot of these are maybe one or two generations removed from any kind of an agricultural background.” [Chester Nielsen, State Ag. Professional 562-563]
Key informants admit that traditionally, small-scale, diversified farmers have been almost ignored in ECI in terms of outreach and educational resources. To some extent, attention is still directed toward conventional agriculture, although there have been recent, concerted efforts to address the needs of small farmers. It seems that outreach agencies are becoming more aware of the need to serve smaller scale farmers, and new opportunities, such as NRCS grants available for the constructions of high tunnels\(^3\) (as multiple mentioned by multiple KIs) are becoming available.

“[My organization] kind of just put me in charge of [value-added activity] temporarily in our efforts to ramp the efforts up to help smaller farmers. And it doesn’t even have to be small farmers that do it, but direct marketing, CSA, the farmers markets, wholesale, retail- I’d really like to see us get more involved in helping people with that... We haven’t really been involved with that up to this point.” [Shawn Rossville, State Ag. Professional 33-38]

“There are some pockets of folks within Purdue that are really trying to get more Extension programming going around small farming.” [Arty Roehl, Ag. Educator 59-60]

“[R]ight now, especially if you’ve got somebody that’s a little more willing to take risk and be innovative, then this is a really good time because there are lots of new opportunities coming out... So, I think for somebody getting started now, even though we may not have quite as much information as what I feel we should have, is that there really are some good opportunities financially.” [Candy Larsen, Ag. Educator 184-191]

Small farmers, according to KIs, are more likely to seek out sources like Extension for information, whereas their larger counterparts are more likely to turn to seed and fertilizer companies, private contractors, or directly to Purdue experts for information. KIs also describe two separate strains of written information directed at farmers, one directed primarily for conventional farmers, and the other, having a wider spread and variety of

\(^3\) A high tunnel is an unheated, greenhouse-type structure often used on farms to extend the growing season of horticultural crops.
sources, directed more toward alternative, perhaps smaller, farmers. This idea was expressed primarily when the KIs were asked for recommendations of written information sources commonly used by small farmers. While there were few publications consistently cited, a small number of magazines were referenced multiple times as widely read primarily, although not exclusively, by conventional farmers. KIs were not as familiar with specific publications or sources used by smaller, more alternative farmers, and there were few repeats of any specific publications.

In terms of improving and providing additional outreach for small farmers, one challenge educators noted is the diversity of needs among the community of small producers.

“One observation is that the farms can either be really large or really small. The other observation is that they’re very diverse in their interest and products. So, therefore, for educational purposes, it makes it a little bit challenging to target what they want. But I find that the smaller they are, the more interested they are in various topics.” [Kevin Witt, Ag. Educator 114-117]

“Small farming is very diversified. There are 100s of possible topics, so if you’re addressing one, you’re not addressing 99 of them. So we try to direct people to other resources, other counties that are doing things. But I think in general people are pretty pleased with what’s being done. I think there’s always more that could be done.” [Frank Attica, Ag. Educator 327-330]

Still, most KIs feel that many farmers are unaware of the large number of resources available to them. KIs often described their organization or services as one of the “best kept secrets” in agriculture, or simply described a lack of familiarly with some of the more traditional agriculture resources such as Extension, NRCS, Farm Bureau, etc. on the part of the farmer. This, in turn, becomes a challenge for the farmer in not knowing where to go for assistance.
“I think probably some of them aren’t aware of what NRCS, SWCD, and FSA can offer them, so I think that may be part of the problem.” [Annette Shaw, College Ag. Educator 285-286]

“We’ve got, with small farms in Indiana, an emerging clientele that really doesn’t know that Purdue Extension exists and what it’s there for.” [Ike Lymburn, Ag. Educator 86-87]

“There’s a lot of the traditional places you can go to that most new folks don’t know about. You’ve got the soils and water districts, you’ve got the NRCS, you’ve got Purdue Extension. Go to the library, the internet and find anything you want. And sometimes it’s hard to find because if you’ve been within the agriculture community, it’s kind of a natural because you go to NRCS to talk about soil conservation… So, they do their additional research and they find those places out, and a lot of it is time consuming.” [Chester Nielsen, State Ag. Professional 527-536]

According to KIs, there seems to be a potential for cooperation or a collaborative attitude between farmers to help each other and share information. Some KIs seem optimistic about the willingness of the small farming community to work together.

“It’s not an exclusive club or anything. I get the idea that the farmers are pretty generous with their information.” [Philip Venture, Ag. Educator 174-175]

“I would say that there’s a lot of camaraderie between farmers…” [Chuck Street, State Ag. Professional 628]

“…the one thing that I have noticed is that a lot of the small farmers are definitely always willing to show you how they produce what they produce and give you tips and try to help you out.” [Chester Nielsen, State Ag. Professional 538-539]

Yet, there also seems to be some hesitancy, and there is a level of disagreement between KIs on farmers’ willingness to cooperate. One KI, for example, alleged that he did not know of any small farmers who would be willing to be interviewed for the study for fear that their ideas might be stolen. Other KIs also seem to be somewhat apprehensive about the willingness of farmers in ECI to work together, although they note that things may be changing.
“They should be sharing information and experiences and knowledge. Not trying to hide and compete. At least that’s my opinion… I don’t know. I sometimes feel like there is some hesitancy for them to share and be open with one another.” [Arty Roehl, ag. Educator 302-306]

“There you have a group of people who are willing to collaborate to the point of increasing consumer knowledge of local foods. So they’re marketing local food availability. But as far as actually crossing the line and actually selling product together, they have been a little reluctant to go there. Because that kind of crosses a line because now you’re literally interdependent and you’re mixing financial-type information. There are places that have very strong histories of people marketing their product together, but we don’t see a lot of that here.” [Frank Attica, Ag. Educator 293-299]

“I think things are starting to get- there’s starting to be a lot more field days, or farmers are actually letting field days on their farms, or they’re more open to sharing. But I think there was a lack of sharing and willingness to help other farmers… It used to be well, I figured this out, and I’m not sharing it because everybody else is going to do the same. And I think guys are starting to come together and say, look. We all know this is a struggle, we all know this is expensive. What can we do to help each one of us? So, I think that’s helping, or advancing.” [Denise Woodrow, Conservation Specialist 183-190]

KIs indicated a need not only for increased education for small farmers, but also the need for public education to help consumers understand and become aware of locally produced foods. The general public, or consumers, they say, are in need of a basic understanding of what it takes to grow food and what the differences are between locally produced products and some of the products typically found at the store.

“There’s a lot of education that needs to be done yet in this area. We see that here, too. We’ve got a garden, and it’s just such a struggle to get anybody interested in growing food.” [Annette Shaw, College Ag. Educator 146-148]

“Another need is showing people what they can do with local produce. I don’t think people know how to cook anymore. Especially with fresh stuff. And how to preserve fresh stuff. We’ve really lost that.” [Annette Shaw, College, Ag. Educator 307-311]

“People who don’t necessarily, I’m not gonna say that they’re ignorant, but education is not their forte, they work 9 to 5, paycheck to paycheck- to them it’s not something that they’re going to want to invest in because what am I going to
do with it anyway? Because, you know, we get it already made or boxed. It’s just an educational challenge.” [Tom Carlson, Experienced Farmer and Community Leader 106-109]

“So, people are out there, but I’d go up to my little hometown, there’s only 300 people there, and I’d say you’re looking at 10 percent of them are educated past high school. They don’t care. It doesn’t matter to them. A veggie is a veggie is a veggie.” [Chester Nielsen, State Ag. Professional 445-447]

Regional Sustainability Concerns

When asked about regional sustainability concerns, most KIs expressed water quality as being the number one concern, especially according to public perception. A number of KIs brought up recent changes in state regulations for manure management requiring producers to obtain certification before spreading manure. Water quality was primarily talked about in terms of nutrient management, or run-off of pollutants into waterways.

“I can tell you through my job, I know water quality is a huge issue, and it’s been driven by the hypoxia issue in the Gulf. So the Midwestern states are going to have to address this, and we are in the process of doing that… Water quality is affecting all of us- and that means how much nitrogen and phosphorus you can put on without being limited. If they’re involved in livestock, there are new rules coming down the pike. Application of manure on frozen ground, etc, and. a lot of that is a challenge for smaller farmers.” [Shawn Rossville, State Ag. Professional 109-111, 144-147]

“We have a tendency to over-apply fertilizers. Then we turn around and we have this hog facility that goes in, and so now we add this waste product called manure, so many people don’t understand that you can over-apply.” [Chuck Street, Conservation Specialist 277-279]

“I think in general the ag. industry in this area is pretty aware of environmental issues as far as things like chemical runoff, manure runoff, waste-type of runoff. But the main reason they are is because they’re being legislated this way.” [Annette Shaw, College Ag. Educator, 52-54]

Soil conservation was cited as a natural resource concern as well, but to a lesser extent than water quality. KIs commonly explained that soil conservation used to be a source of greater concern, but since a variety of improvements have become widely adopted in
cropping practices, soil conservation has moved lower on the list of concerns. Several KIs also explained that there has been a push in agricultural agencies recently to focus on overall soil health, rather than simply on soil conservation.

“We’re pushing soil health right now. We’re not saying soil health just equals no tilling, we’re saying good soil means you had a biodiversity of soil with your microorganisms and everything. Having earthworms. And who would have preached that ever- that earthworms would have been the best thing for your soil? And cover crops. We’re also talking about cover crops a lot. So I don’t know, I think it’s just changing a lot.” [Denise Woodrow, Conservation Specialist 92-97].

“[Soil quality] is kind of a topic that within the last couple of years has really started to peak again as kind of getting back to some of the basics as far as, we’ve got all these different fertilizers and chemicals and modified seed and that kind of thing, but maybe we need to go back and look at the soil quality itself. So that has been something- cover crops are huge right now. There’s a lot of interest.” [Candy Larsen, Ag. Educator 100-104]

“I think soil health is a big issue. Tending the organic matter and microbial activity in the soils. And that’s not just large scale agriculture, that’s some of our small-scale intensive farms, too. When we think about these high tunnels where people are growing a single crop year after year intensively, those are just as degrading as any other production practice if you’re intensively managing it. Soil health is a big one.” [Frank Attica, Ag. Educator 66-70]

One sustainability concern mentioned several times more specific to small farmers was the issue of pesticide drift. Being in a mostly conventional agricultural area, said informants, can make it difficult for small farmers growing alternative, and especially organic, crops nearby. Informants mentioned recent programs aimed to address drift problems, such as Driftwatch, an online tool where farmers can register their properties as sensitive zones to raise awareness of nearby farmers who may spray their crops.

“I think there is a concern when we start getting more specialty crop producer mixed in with row crop. As much as we can possibly educate both of them where they’re at because there can be damage to a specialty crop from a pesticide sprayed on a row crop.” [Kevin Witt, Ag. Educator 203-206]
“We’ve got a lot of concerns about specialty crops and the impact of adjacent conventional farming on that- the pesticide drift issue and that sort of thing onto organic pastures and crops.” [Frank Attica, Ag. Educator 39-41]

The subject of chemical drift often prompted the discussion of conflict between conventional and nonconventional farmers in ECI, although several KIs also mentioned this topic throughout other parts of the interview. Many KIs feel that there is somewhat of a polarization of viewpoints between conventional and nonconventional farmers, and feel there is a need for farmers to put aside their differences and work toward common goals.

“That’s one thing about the ag. industry that I really... we’re polarized. I mean, the people on this end absolutely hate the people on that end and vice versa, and it’s stupid… I think we really need to work within this ag. community of getting people to accept both types of agriculture within the community itself. And we’ve been polarized for a long time, so I imagine this could take a long time.” [Annette Shaw, College Ag. Educator 259-261, 292-294]

“Some of the large guys see these little guys as flies on the wall, you know, they want to swat ‘em. Other ones accept the fact that they’re part of the same agriculture. Whether you’re small or whether you’re large, you’re still ag. You’re going to have the same problems.” [Chester Nielsen, State Ag. Professional 114-117]

“[Y]ou’re seeing sort of this conflict or animosity between conventional farmers and this other side of things. And rather than trying to promote an understanding and a communication between these two different camps, or whatever you want to call it, communication kind of breaks down and there’s just kind of this war of words. You see that throughout the nation, it’s not just here, but, it’s here as well.” [Arty Roehl, Ag. Educator 131-136]

Summary

Key informants (KIs) from a variety of agricultural backgrounds were interviewed to provide regional context and to help inform questions asked on the interview protocol. KIs described several topics as being important to small-scale farming in East Central Indiana. Important themes included: Markets; Barriers to Entry and Continued Success in Small-scale Farming in ECI; Education; and Regional Sustainability Concerns.
Marketing was one of the most prominent themes KIs identified, and was viewed to be one of the most significant challenges for small farmers in ECI. KIs did not seem overly optimistic about attitudes in this area toward local foods, but they acknowledged that interest was growing, and they seemed to express that there was room for growth. Specific questions in the farmer interview protocol were directed toward producer marketing to further explore these issues. Interestingly, issues related to marketing became exceedingly relevant throughout interviews with farmers (not just in parts of the interview directed specifically toward marketing).

A related issue that stood out was KIs’ views of the farming culture in ECI. Many speculated that ECI’s history of the tradition and dominance of conventional agriculture may have stifled the growth of the small farm/local food movement in ECI compared to other areas. Their attention to the polarization in farm sizes that has occurred over recent years (comments such as, “big farms have gotten bigger, and small farms have gotten smaller or disappeared”) may be further testament to the continuing dominance conventional production has on the regional farming culture. Aspects of farming culture became especially important throughout the farmer interviews, particularly as related to ecological concerns and educational needs. These issues will be further discussed in the following section on farmer interview results.
RESULTS: SMALL-SCALE FARMER INTERVIEWS

Broadly speaking, this study sought to explore the question of what it means to be a smallholder farmer in East Central Indiana. More specifically, these interviews investigated the following questions in the context of East Central Indiana: What are smallholder farmers’ attitudes and motivations toward farming and sustainability? How are those factors related to management practices and on-farm sustainability? What are the barriers and opportunities in regard to sustainable management on small farms? What educational resources are available and used? What is the importance of regional context in farming decisions?

This chapter is organized into two sections: the first section outlines characteristics of the research population by introducing participating farmers and summarizing demographic and farm data collected; the second, more extensive section summarizes the common themes and topics that arose from the in-depth interviews.

Research Population Overview

Thirty three interviews were conducted with farmers in East Central Indiana (ECI). Two farmers were excluded due to a misconception in the referral process; one farmer was excluded for having acreage significantly above the 260 acres designated for the study, and the other because, although prior to the study the interviewee would have matched the selection criteria, he stopped farming in the last year with no intentions of continuing
to farm. Two other farmers also failed to meet the criteria for direct or local marketing (although one of these farmers formerly engaged in direct marketing), and thus were excluded because of the study’s focus on local food systems. Interviews lasted approximately one hour, resulting in transcripts averaging about 15 single-spaced typed pages in length each.

Introducing Participating Farmers

Janice Hunt and her husband own a 65-acre property, part of which is cash rented for traditional row crop production. Janice’s current operation is an on-farm herb and flower business and greenhouse, although she has previously sold vegetables and other products through farmers markets.

Kelsey and Dennis Todd farm about 2 acres of produce in addition to a greenhouse and another 20 or so acres of traditional row crops. Kelsey farms full-time and cares for their daughter while Dennis works full-time off farm. Kelsey and Dennis market their products through wholesale markets and via farmers markets in the greater Indianapolis area.

Clark Dunham operates a four-acre U-pick strawberry farm. Clark is married and has two children, and also works as a full-time pastor. Clark sells on-farm, and also occasionally supplements his own products with produce from nearby auctions.

Ben Hagmann, a retired professor, operates a 20-acre perennial flower farm with his wife, Gina. Ben and Gina are actively involved in several community organizations and often offer their skills by providing workshops and classes for Master Gardeners and other groups. They sell all of their products (save items sold at occasional garden fairs/events) directly from their farm.
Marcie and Alex Long operate a 57-acre full-production goat dairy. Marcie works full-time in Indianapolis, while Alex runs his own business from home. They have one child and sell their products to a number of specialty grocery stores, as well as at farmers markets.

Jasper Ammerman operates a 9-acre apple orchard with his wife, Nancy. Jasper retired from careers in ministry and food management. Jasper and Nancy operate an orchard shop from their farm, where they sell most of their products. They also travel to a few farmers markets and occasionally supplement their own goods with produce from nearby auctions.

Edgar Workman is a retired service technician who operates a 38-acre farm with the help of his son. Edgar cash rents part of his property in conventional row crop production, but farms 3.5 acres of produce in addition to a greenhouse operation. Edgar sells his produce on-farm, at farmers markets, and through wholesale markets.

George and Patty Werner own 48 acres, most of which are rented to their brother for traditional row crop production. They grow about 2 acres of organic produce outside and in a high tunnel to sell at farmers markets. Patty retired from a career in public health, and George from a career in education.

Bill and Stephanie Fairchild operate 130 acres, farming a large portion of their property in traditional row crop production. Their son in law also works on the farm and is particularly involved with their three high tunnels for vegetable production and several acres of berry production. Although they have previously experimented with the CSA structure, their products are currently sold through a U-pick operation, an on-farm
(honors system) produce stand, and through several roadside stands. Bill farms full-time, while Stephanie works full-time off-farm.

Stan and Regina Chalmers own 98 acres and rent another 22 acres for their livestock farm, which includes cattle, chickens, turkeys, hogs, and ducks. They also grow a small amount of produce and occasionally supplement their own products by purchasing produce from other local farmers. Stan and Regina both work full-time off-farm and have one young child. They sell their products directly from the farm, as well as at a number of farmers markets.

John and Rachel Wolcott farm 7.5 acres, primarily producing free-range poultry and eggs, but also organic specialty crops such as garlic. Rachel formerly worked in the auto-manufacturing industry, but now manages the farm full-time while caring for their three children while John works off-farm.

Rod and Ginny Morgan both work full-time while operating their 9-acre produce farm. They have one school age child, and they sell their produce through farmers markets and on-farm. They also operate a small greenhouse business from their farm, where they start all of their seeds and also produce hanging flower baskets for sale. They recently received funding support to build a high tunnel to extend the growing season on their farm.

Bart and Francis Carter own a five-acre property, which they identify as a hobby farm. They produce free-range eggs to sell directly from their home through an honor system. Both retired, they have a flock of about 250 chickens, which began as a small operation for their family and neighbors and eventually grew into a small business.
Eunice and James Sinkel operate a 10-acre produce farm inherited from James’ family. They have a small shop on their farm where they sell their produce. Eunice and Daniel feel strongly about providing an affordable source of healthy food for low-income residents of the local community. They also host a free children’s haunted house at their farm as a way to give back to the community and promote their business.

Neil Ford owns a 10-acre property where he farms about two acres of vegetables and fruit trees. He also raises and sells products from a large number of nut trees and is an active member of the Indiana Nut Growers Association and Master Gardeners. He and his wife are retired, and they sell their products through farmers markets.

Barb Newman grows about an acre of produce while staying home to care for her two children. She and her husband own about 15 acres in total, and they market their fruits and vegetables through their local farmers market.

Buck Rosevold is a retired engineer who uses his skills to manage a 14.5-acre apple orchard, produce, bakery, and gift-shop operation. He sells a majority of his products off the farm, but occasionally travels to area farmers markets.

Crystal Giddings is a retired accountant who is beginning her first year of production on her organically certified farm. She owns 80 acres, some of which is planted in organic row crops, and the rest of which is used for intensive livestock grazing. Crystal’s main operation is winter vegetable crop production through several high tunnels and other season extenders. Crystal sells all of her produce through wholesale markets in the Indianapolis area.

Amy Greenwood grows about 2 acres of organic produce (including a greenhouse and two high tunnels) on her 4-acre property, which she inherited from her family. Amy
is a divorced, full-time farmer with two children, and she sells her products through farmers markets and specialty grocery stores.

Helen and Charlie Stedman retired from working in the auto-manufacturing industry. They operate a 21-acre apple orchard and orchard shop where they sell all of their products and produce their own cider and other apple products.

Dave Potvin works full-time in the transportation sector and cares for his small herd of buffalo on his 10-acre property. Dave sells processed bison meat from his home and at specialty grocery stores.

Carl Gullickson is a retired art teacher who operates a 50-acre fruit orchard inherited from his family. Carl’s main operation is producing peaches, but he also produces apples. He also sells art pieces at his orchard shop and at area galleries and festivals. He markets all of his fruit directly from the farm.

Steve and Jake Goodam operate a small winery on a 150-acre farm inherited from their father. While they import a majority of the fruit for their wine operation, they produce about an acre of grapes and elderberries for their products, and Jake plans to expand elderberry production and add vegetable production in the future. The majority of their farm is cash-rented to area farmers for traditional row crop production. Steve is retired from the auto-manufacturing industry, and Jake is soon to retire from a manufacturing industry position. They currently market their wines through a number of liquor stores, as well as from the farm, where they also hold a variety of events and tastings.

Allen and Carey Oakley operate a 161-acre farm, part of which is in pasture for sheep, and part of which is registered as a classified forest. Carey is a middle school student...
science teacher, and Allen is a pastor. They sell their sheep whole from the farm. They have received several awards for their leadership in conservation efforts.

Frank Winchester retired from the automotive industry and currently operates a 17-acre sheep and honey farm. His main operation is raising bees and he sells his honey products at farmers markets in the Indianapolis area, as well as at a variety of festivals. Frank is an active advocate for beekeeper education as a founding member of the Indiana Beekeeper’s Association.

Peter Samson is an Amish farmer who raises produce while raising his 12 children on their 40-acre farm. Peter farms full-time while also running a small mechanic shop from his farm where he specializes in fixing a variety of small motors. He sells his products from the farm as well as through a local produce auction.

Clint and Heather Mattock are an Amish farming couple who recently moved to Indiana from Lancaster County, Pennsylvania. They primarily produce eggs, which they sell from the farm and through specialty grocery stores, but they also raise and sell sheep for meat, and occasionally hay. They farm the majority of their 68 acres in corn and alfalfa to feed their chickens.

Garret Martin is an Amish farmer from Pennsylvania who produces pasture-raised meats and dairy products, as well as honey and potted flowers. He also sells raw milk through the cow share system. He and his wife have 7 children, and they sell their products from their 40-acre farm, at local auctions, and at local farmers markets.

Brian Klug farms about 3 acres of produce on the 5-acre farm he owns with his wife, Lucy. Brian and Lucy are Amish farmers who recently moved to Indiana from
Lancaster County, Pennsylvania. They have a small stand at their farm where they sell product, but they sell most of their produce at a local auction.

*Demographic and Farm Data Summary*

A short demographic survey (Table 1, Figure 1) shows descriptive data for our population. Farm sizes ranged from 4 acres to 161 acres, with a mean farm size of about 42 acres. Our youngest farmer was 30 years old, and the oldest was 79 years old, with the average age of our farmers being about 55 years. All but three farmers were married, with the remaining being divorced/separated or widowed.

The products produced by the farmers in this study were as diverse as the farmers themselves. The largest category for production was fruits and vegetables. Added together, 22 of the farmers were producing fruits and vegetables for sale as at least part of their operation. 10 farmers included livestock products as part of their operation, while only 2 farmers engaged in traditional row crop production as part of their operation (although a few farmers did cash rent a portion of their properties to be farmed in row crops).

In terms of employment status, the largest proportion of our farmers identified themselves as retired. Combining full-time and part-time employment, about 41 percent of our farmers worked off-farm jobs.

Many of the farmers interviewed in this study were highly educated, with 55 percent having obtained at least a Bachelors’ Degree, and a third of all farmers having obtained a Graduate or Professional Degree.

Politically, two-thirds of farmers in this study identified themselves as conservative or moderately conservative, although 2 farmers chose not to report their
political leanings. About 14 percent described themselves as liberal or moderately liberal, while the remaining identified as moderate.

While only about half of farmers in this study reported being satisfied or very satisfied with their financial situation, all but one farmer anticipated that their financial situation will be either about the same or better off in the following year.

All of our farmers reported earning less than $150,000 per year in income from farming, with three-fourths of the farmers earning less than $50,000, and 40 percent earning less than $15,000 per year. These numbers were intended to represent household income from farming (i.e., household profit from farming after expenses), but analysis of demographic questionnaires alongside information gathered during and after recorded interviews indicated that some farmers may have been confused and reported farm revenue instead (i.e., total value of products sold from the farm, before expenses). Although there may be significant errors in this category, it is worth considering because the results show a general idea of income for most of the small farmers in our study.
Table 1. Farmer Characteristics

<table>
<thead>
<tr>
<th>What Farmers are Producing</th>
<th># of Farmers</th>
<th>% of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits/Vegetables</td>
<td>14</td>
<td>48</td>
</tr>
<tr>
<td>Fruits/Vegetables and Row Crops</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Livestock</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Mixed Farming</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>Herbs/Flowers</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

**Employment Status**

<table>
<thead>
<tr>
<th>Employment Status</th>
<th># of Farmers</th>
<th>% of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming full-time</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Off farm full-time</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>Off farm part-time</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Retired</td>
<td>10</td>
<td>34</td>
</tr>
<tr>
<td>Homemaker</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

**Educational Attainment**

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th># of Farmers</th>
<th>% of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade school</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Some high school</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Completed high school or GED</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Some college</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Technical school beyond high school or Associate's Degree</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>Graduate/Professional Degree</td>
<td>10</td>
<td>34</td>
</tr>
</tbody>
</table>

**Self-reported Political Alignment***

<table>
<thead>
<tr>
<th>Political Alignment</th>
<th># of Farmers</th>
<th>% of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberal</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Moderately liberal</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Moderate</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Moderately conservative</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Conservative</td>
<td>16</td>
<td>59</td>
</tr>
</tbody>
</table>

**Financial Satisfaction**

<table>
<thead>
<tr>
<th>Financial Satisfaction</th>
<th># of Farmers</th>
<th>% of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Unsatisfied</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Neither Unsatisfied nor Satisfied</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>Satisfied</td>
<td>12</td>
<td>41</td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

**Income from farming***

<table>
<thead>
<tr>
<th>Income from farming</th>
<th># of Farmers</th>
<th>% of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $15,000</td>
<td>11</td>
<td>38</td>
</tr>
<tr>
<td>$15,000-$24,999</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>$25,000-$34,999</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>$35,000-$49,999</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>$75,000-$99,999</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>$100,000-$149,000</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>$150,000 or more</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*27 out of 29 farmers reported values for these categories
Figure 1. Farmer Characteristics

**What Farmers are Producing**

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Number of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits/Tree Fruits</td>
<td>16</td>
</tr>
<tr>
<td>Vegetables</td>
<td>14</td>
</tr>
<tr>
<td>Grains</td>
<td>4</td>
</tr>
<tr>
<td>Crops</td>
<td>2</td>
</tr>
<tr>
<td>Livestock</td>
<td>2</td>
</tr>
<tr>
<td>Mixed Farming</td>
<td>2</td>
</tr>
<tr>
<td>Heats/Powers</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

**Employment Status**

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Number of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming full-time</td>
<td>10</td>
</tr>
<tr>
<td>Off farm full-time</td>
<td>8</td>
</tr>
<tr>
<td>Off farm part-time</td>
<td>6</td>
</tr>
<tr>
<td>Retired</td>
<td>4</td>
</tr>
<tr>
<td>Homemaker</td>
<td>0</td>
</tr>
</tbody>
</table>

**Educational Attainment**

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Number of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade school</td>
<td>12</td>
</tr>
<tr>
<td>Some high school</td>
<td>4</td>
</tr>
<tr>
<td>High school or GED</td>
<td>4</td>
</tr>
<tr>
<td>Some college</td>
<td>2</td>
</tr>
<tr>
<td>Technical degree</td>
<td>2</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>0</td>
</tr>
<tr>
<td>Graduate/Professional</td>
<td>0</td>
</tr>
</tbody>
</table>

**Self-Reported Political Alignment**

<table>
<thead>
<tr>
<th>Political Alignment</th>
<th>Number of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberal</td>
<td>18</td>
</tr>
<tr>
<td>Moderately liberal</td>
<td>10</td>
</tr>
<tr>
<td>Moderate</td>
<td>8</td>
</tr>
<tr>
<td>Moderately conservative</td>
<td>4</td>
</tr>
<tr>
<td>Conservative</td>
<td>0</td>
</tr>
</tbody>
</table>

**Financial Satisfaction**

<table>
<thead>
<tr>
<th>Satisfaction Level</th>
<th>Number of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Unsatisfied</td>
<td>0</td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>0</td>
</tr>
<tr>
<td>Neither Unsatisfied</td>
<td>0</td>
</tr>
<tr>
<td>Satisfied</td>
<td>14</td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>12</td>
</tr>
</tbody>
</table>

**Annual Income from Farming**

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Number of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $15,000</td>
<td>2</td>
</tr>
<tr>
<td>$15,000-$19,999</td>
<td>4</td>
</tr>
<tr>
<td>$20,000-$24,999</td>
<td>2</td>
</tr>
<tr>
<td>$25,000-$29,999</td>
<td>4</td>
</tr>
<tr>
<td>$30,000-$34,999</td>
<td>2</td>
</tr>
<tr>
<td>$35,000-$39,999</td>
<td>4</td>
</tr>
<tr>
<td>$40,000-$44,999</td>
<td>2</td>
</tr>
<tr>
<td>$45,000-$49,999</td>
<td>4</td>
</tr>
<tr>
<td>$50,000-$54,999</td>
<td>2</td>
</tr>
<tr>
<td>$55,000-$59,999</td>
<td>4</td>
</tr>
<tr>
<td>$60,000-$64,999</td>
<td>2</td>
</tr>
<tr>
<td>$65,000-$69,999</td>
<td>4</td>
</tr>
<tr>
<td>$70,000-$74,999</td>
<td>2</td>
</tr>
<tr>
<td>$75,000-$79,999</td>
<td>4</td>
</tr>
<tr>
<td>$80,000-$84,999</td>
<td>2</td>
</tr>
<tr>
<td>$85,000-$89,999</td>
<td>4</td>
</tr>
<tr>
<td>$90,000-$94,999</td>
<td>2</td>
</tr>
<tr>
<td>$95,000-$99,999</td>
<td>4</td>
</tr>
<tr>
<td>$100,000-$139,999</td>
<td>2</td>
</tr>
<tr>
<td>$140,000 or more</td>
<td>4</td>
</tr>
</tbody>
</table>
Interview Results

Based on the interviews, the following themes emerged relevant to small-scale farming in ECI: Motivations for Farming; Barriers to Sustainability; and Farmer Learning and Education. Several important subthemes also arose within each theme, which will be explained in detail in this section.

Motivations for Farming

The motivations of farmers in this study were complex and multifold. While farming, by nature, is a business, none of the farmers in our study expressed business and financial aspects as their sole motivations for farming. Rather, farmers touched on a variety of reasons why they began farming, why they continue to farm, and what they like about being farmers.

Importance of Profitability

Farmers in our study were, perhaps unsurprisingly, interested in making a profit from their farming operations. Yet, there was a spectrum along which farmers found profitability to be important. Some farms, especially when farming was the operator’s primary occupation, viewed profitability as an important measure of the success of their farm from year to year. A number of farmers, many retired, viewed profit from farming as a supplemental income - welcome, and helpful to their financial situation, but not something they could depend on exclusively as a source of income. Still, some farmers seemed somewhat apathetic; they viewed making a profit positively, but were happy to just break even (again, not necessarily relying on the farm for income). Several farmers
perceived that they could not make a viable living farming as they are, so they identified other things that make it worth doing.

“What determines a good year is if we have any money left over. I think it’s rewarding to see a challenge - a challenge being what we’re doing, to grow apples and organize it, and sell and turn a profit. It’s the American way. Capitalism, free enterprise. It’s you against the world.” [Charlie Stedman 242-243, 337-341]

“In a year like this with the weather, it’s probably not going to come down to whether we make money or not, because we’re probably not going to make money this year. This year, it’s whether we had a good relationship with our buyer and whether we were able to ship some… Profitable to a point is a good year, but not every year is going to be profitable.” [Kelsey Todd 178-182]

“Of course we’re a Christian business, so one of our goals is to have Christian standards and a way of life that we can model to people who come here. So that’s always at the forefront, and the kind of behavior that comes out of that worldview is certainly something that we aspire to. And that’s even more important than turning a profit as far as I’m concerned, as far as my wife is concerned.” [Jasper Ammerman 427-432]

Farming as an Inheritance, as a Calling

Farmers often described the desire to farm as hereditary, or as something that is just “in your blood.” As one farmer explained, even though you may not have farming directly in your genes, it can still get in your blood; at that point, it becomes a kind of unexplainable calling. Many farmers felt an unidentifiable urge compelling them to farm, even if they felt it was against their better interest. They expressed a love for farming that goes beyond farming only as a business.

“It’s when it gets in your blood. Notice I said, gets in your blood - you can’t walk away from it. It’s not in Steve’s (my brother’s) blood. My wife purposely finds things for me to do in the spring to keep me from doing something stupid, because I will. The itch starts hitting. I can’t explain it other than that - it’s just something that’s in you. It’s just hard to explain, especially if you weren’t born on a farm.” [Jake Goodam 416-426]

“Farming is just an instinct. It’s something you grow into.” [Peter Samson 175]
“Farming is almost always hereditary. It’s in your blood. It’s something you’re born to do that you almost… maybe it doesn’t even make sense to do it, but you want to do it anyway kind of thing.” [Barb Newman 136-140]

Farmers also described some of the more practical aspects of farming as an inheritance.

For farmers who grew up in farming families, most of their skills were learned from parents, relatives, and neighbors. Especially when maintaining a multigenerational operation, farmers mention inheriting not only the farm and farming skills, but oftentimes also their clientele. They talk about witnessing several generations of the same families returning year after year as loyal customers, suggesting that to some extent, there may also be an inheritance aspect to the consumption of local foods.

*Health or Environmental Triggers*

A large number of the farmers in our study described a specific event related to health or the environment that led to their decision to begin farming. Most farmers also described a growing disillusionment with our current food system and its negative impacts on human health and the environment.

“My husband’s dad had cancer, and the doctors pretty much straight up told him it was from handling pesticides. He does all the precautions, but he pretty much said that’s what it was from. So, down the road, you know it’s not good to be spraying some of this stuff.” [Kelsey Todd 356-358]

“I think farming, especially through the 70s and the 80s was of the attitude to ‘get it done, get it done cheap, get it done fast.’ And the American farmer is an ingenious person, and the research was there to support him, and we got it done. But we never did ask if we should. What are the consequences of us producing all this food as fast as we can, using all these chemicals and genetic modifications? What are we going to lose? Nobody really asked that question, and I think we’re there now. I think we figured out that we sacrificed some things to have that kind of volume- with the economic benefit we got from being able to raise that kind of volume. So that’s why so many people are kind of taking a step back to the way things were done 40 or 50 years ago. And I know it is for us.” [Rachel Wolcott 47-55]
“We see people my age, born in the late 60s and in the 70s being diagnosed with multiple sclerosis and crones and all these autoimmune disorders, and we’re starting to say, okay, what’s up? Why is this happening? And I think it’s logical for us the look at our food source as a possible contributor to the problem. Not the only problem, but definitely a major contribution comes from there.” [Rachel Wolcott 148-152]

“I am very uncomfortable with the chemicals and things that are being put on our foods and the effect that it has on people and children.” [Jake Goodam 299-302]

**Stewardship**

Many of the farmers in our study expressed a strong connection to the land and an ethic of environmental stewardship. Farmers described a sense of responsibility to “take care of the land.” Often, farmers felt that part of this responsibility was to use the land productively, or to maintain and improve the quality of the land through use. Some farmers connected their sense of stewardship to spiritual beliefs, such as a directive from God to care for the earth. Others felt a responsibility to nature, and the need to give back what they were taking from the ground both for environmental reasons and to ensure the future productivity of their farms.

“I’m kind of a little bit of an ecologist in that I think you ought to leave it better than when you took it.” [Dave Potvin 127-128]

“It’s hard to articulate the idea in English, but there’s a saying in our language that goes something like, ‘You can see how we are inside us, and our godliness is how we operate our farms.’” [Peter Samson 110-112]

“To be a good farmer is to be a good steward of the land, of course. Honest. Being honest with the land, not demanding more out of it than what Mother Nature is willing to give. Being honest completely and up front with all of my products that I present to the public - the integrity of what I’ve been doing for the last 20 years.” [Frank Winchester 164-167]

“Years ago when we were young, we bought 5 acres, and I thought, the Lord let us have 5 acres. I think it’s our responsibility to keep it nice, and looking nice. And we’re not to where we do all of it, but I think it’s our responsibility to do
something with it other than just let it go, because I think it reflects on Him what we do with it.” [Francis Carter 208-211]

Still, environmental stewardship, or “taking care of the land” seemed to have varying definitions among farmers. For some, it meant no use of artificial chemicals, for others it meant limited chemical use. For some, it meant giving back what has been taken from the soil, or perhaps paying special attention to the soil’s biological properties.

“We do crop rotation and that sort of thing, but people don’t realize that when you plant and start taking things out of the soil, you have to put it back in. Last year, we had a company come out and fertilize the whole field and put ag. lime down, and we could not believe the change.” [Ginny Morgan 617-620]

“We are what you call biological farmers. We basically believe that the biology of the soil is all that’s really needed if it’s managed properly. And that’s really a basic underpinning of organic as well. We would not use chemicals, no herbicides, no pesticides, that sort of thing.” [Crystal Giddings 35-37]

“I think being a good farmer means to be responsible to the earth. You know, we do use spray. We don’t try to tell people we’re something we’re not, but we’re very, very responsible with it. That’s actually the word that we use. If we don’t need it, if we see disease, we use it sparingly and try to control it with maybe one spray versus five, that kind of thing.” [Stephanie Fairchild 129-132]

Many farmers seemed to be concerned about the perception of their farm as orderly. Often farmers would apologize for how “weedy” or “messy” things looked. Aside from the practical aspects of weed management to improve crop yield, maintaining a neat and nice-looking farm free of weeds seemed to be important to many farmers. Some compared their own farms to other, neater farms, longing for the time to make their farms appear well managed.

“What we do here is trashy compared to the other farms in the area. In this area, there is a good German work ethic. The farms around here are immaculate.” [Allen Oakley 53-55]
“My farm is full of weeds - everybody else’s is nicer [laughs]. No, I shouldn’t complain about that. I don’t know. I mean, you compare, but everyone has a different way of doing it.” [Brian Klug 89-91]

“I went to tour another farm and look at what they’re doing. Several of the farmers from our market went over there. One of the guys asked me on Saturday, he said, you got weeds like that guy had weeds? I said, well, I got some. He said, I would have been so ashamed to have a group come out to my farm and have that many weeds! And I said, yeah, and he’s got regular help!” [Patty Werner 426-432]

Lifestyle

Many farmers mentioned that they chose to farm at least in part because of the lifestyle it provides. Farmers expressed liking the challenge and independence of farming, as well as the physical work. Several farmers mentioned that farming was a good way for them to stay active in their work, and in some cases, in retirement.

“The farm is an extension of our belief system, of us, our philosophy, of our lifestyle.” [Allen Oakley 133-134]

“Neither my husband or I are desk job kind of people. We are very much hands on.” [Kelsey Todd 105-106]

“I’ve got to be out doing something - keep my boyish figure.” [Dave Potvin 155]

“The reason why I wanted to retire to farming was because I wanted to be active in retirement, and I’m absolutely passionate about growing things.” [Crystal Giddings 147]

“I think farming keeps us healthy, actually. I feel like I could have been a lot worse off if I hadn’t been moving and active like I was. They can’t hold us down forever.” [Helen Stedman 333-334]

Farmers also felt that their families benefitted from the farming lifestyle. A number of farmers began growing food for their own families to have an option for higher quality food, and later scaled up their operations to produce for market. Many felt that their families were the primary reason that they kept farming. Several expressed that while
they do not expect or pressure their children to take over the farm, they feel it is important that their children learn from farming. Several farmers mentioned farming as being a good way to teach their children or grandchildren tangible skills, work ethic, and to experience and understand where food comes from.

“It’d be nice to think that one of our children or more would be interested in carrying on the farm, but if that’s not the case, I’d just be thrilled to find out that they have a greater awareness of their own health and how eating whole foods, chemical-free whole foods can change the course of their health. We feel like we’re passing on survival skills to our kids.” [Rachel Wolcott 496-509]

“I would expect the whole basis of everything we do is for our family, when you get right down to it.” [Bart Carter 247]

“The farm is something where we strive to provide for our family nutritionally and use as a way of building the character that we consider important in our children.” [Barb Newman 158-159]

Community

Farmers in this study expressed a sense of responsibility and connection to the community. Many mentioned that East Central Indiana still has a fairly rural tradition of helping your neighbors when they have a problem, which can act as form of support for small (and large) farmers. Many farmers also enjoy their interactions with consumers through direct marketing avenues, although a number of farmers said they would prefer to focus on just producing and leave the marketing to someone else.

“I want to be plugged in to our community.” [Barb Newman 221]

“Part of the reason I enjoy farming is I look at it as a way to meet people and get more involved in the community as well.” [Clark Dunham 76-78]

Many of the farmers in our study were very conscious of the prices they charge for their goods and how food prices affect the community. While many farmers would like to charge more for the goods they produce, several felt that it wouldn’t be “fair” to
customers to raise their prices. Rather, some see providing quality foods at a low price as a way to help people.

“Everybody’s hurting making choices now between food and medicine. How are they going to make that choice when the price goes even higher? It’s not fair. It’s not fair to the elderly, and it’s not fair to the poor. And when we have sufficient extra food, we always call the harvest food bank.” [Eunice Sinkel 320-328]

“We’re not trying to make a million off of this, we’re just trying to help people in general. I’ve called around just to see comparative pricing, and we’re always the lowest. Most of the people who come in here are retired or they’re strapped for money, or there’s a certain income they have, and we don’t want to steal from them. We just want to be fair.” [Helen Stedman 137-141]

Many farmers feel motivated by the satisfaction of providing quality food for the community, taking pride in keeping people fed and healthy.

“When you take something that’s a little seed like this, and then you get something that people eat, that they get nutrition from and… They come to the farmers market with their families, and you start seeing them when they’re like this [makes a “short” gesture], and they’ve ate your produce and they’re getting big, that makes us proud of what we grow.” [Ginny Morgan 400-405]

“To be able to provide stuff that people eat has always been an important thing to me. They put it inside themselves, so that’s an honor and privilege to serve people.” [Jasper Ammerman 423-424]

Many farmers also showed a sense of trust and investment in the community. For instance, several farmers sold portions of their products on an honor system, leaving farm stands at their homes unattended and open for the public. Often farmers made informal agreements with neighbors for the use of their land, sometimes even bartering in-kind.

Some farms provided special events or activities on their farms, often at no cost or little cost to the public, both as a way of marketing their products and serving the community. Many of the farmers in our study also donated surplus goods or products they could not sell to local food banks, and felt it was an important way for them to give back.
“We’re supplying lots of our products to [a local organization] for free because it’s doing something nice for the community. It does give us a little bit of visibility, and I think sometimes you do things like that. Sometimes for altruistic reasons, and sometimes it does help your marketing, too.” [Ben Hagmann 276-280]

“We try to give back to our community. We make donations locally and that sort of thing. And that’s really been a give and take. From what we’ve given, we’ve also been given back.” [Rachel Wolcott 433-435]

Many farmers in our study expressed valuing traditions as a way to gather and connect with family and community members. Often, farmers spoke fondly about a particular event held at their farm each year, or perhaps a certain part of the season that requires a number of hands to gather and help out. Farmers also often spoke about the generational nature of their clientele as something they enjoy about selling through direct markets.

Several farmers in our study felt that consumer education was an important part of what they do. Many talked about the need to constantly educate the public about their products, healthy eating, and about farming practices in general while selling at markets or other locations. Some talked about offering advice or workshops for people interested in farming or gardening, usually at no cost. Some considered education to be a goal of their operation, while others seemed to treat it as something that just goes along with selling directly to consumers.

“I feel like it’s my goal in life to teach people where food comes from because they need to know that carrots come from the ground and not a bag in the grocery store. And as far as teaching about eating vegetables and gardening, I think if kids grow it, they’ll eat it. So it’s kind of like my little mission, I guess.” [Kelsey Todd 449-453]

“I do a lot of education, I really do. I’ll have people stop pretty much every Saturday, and say, we’re thinking about getting some chickens, and we only want a few, and…. So the next thing I know I’m telling them what hatchery I like to use, where they can find this resource, and go to Tractor Supply and buy this book and read it.” [Rachel Wolcott 595-599]
Perceived Barriers to Sustainable Agriculture in ECI

Farmers in our study described a variety of obstacles that challenged the success of their farms from year to year. Farmers seemed to be most concerned or challenged by the economic sustainability of their operations. Farmers described a number of issues related to markets for local food in ECI, as well as wider structural and regulatory issues that affect their operations. They described practical challenges they faced with time constraints and limitations in being able to alleviate those constraints through hired labor. To a somewhat lesser extent, farmers described challenges related to the environmental or ecological aspects of their farms. Finally, farmers described challenges with a range of risks that threatened the sustainability of their farms.

Markets

Markets were by far the most prominent topic discussed in regard to perceived barriers to sustainability. Within the topic of marketing, farmers discussed a variety of issues, which will be outlined in the following paragraphs, including: consumer awareness and willingness to pay in ECI, production costs, marketing challenges, and market competition.

Overall, farmers perceived a relatively low level of awareness about local foods among consumers in ECI, although most said that this awareness has grown in recent years. Several farmers were convinced that most people “don’t know what good food is,” noting changes in overall consumer preferences over the last several decades towards more convenience foods. They also perceived a particularly low willingness to pay on the
part of consumers in ECI compared to other areas in Indiana, as well of a lack of understanding about local products. Several of the farmers in our study traveled to markets in the greater Indianapolis area to sell their products, noting that not only is the market much larger in those areas, but people seem to have more of an appreciation for local foods than in much of ECI. Farmers link this willingness to pay to higher levels of education and income, but in some cases, to a different mindset in more urban areas.

“The community here is just not - it doesn’t have that mentality. They’d rather go to Wal-Mart or, you know… So most or all of our markets are in the Indianapolis area. The mentality of the people here was they just… I don’t know if they were just broke or what, but they just wanted to get something for nothing.” [Frank Winchester, 290-292, 392-394]

“When you get into the different demographics, the upper middle class and higher up, paying more is fine because it’s a premium product and they understand the process and all that sort of stuff. Here, it’s just a whole different demographic. It’s all about price and quantity and what they can pay for it at Wal-Mart.” [Marcie Long, 207-210]

Still, some farmers seem to feel somewhat regretful about traveling to more metropolitan markets to sell their products rather than selling at smaller markets in ECI.

“One reason I’ve started doing more marketing in Indianapolis is because I can price higher. I hate to have to go there for that reason, but that’s my real reason for going there.” [Amy Greenwood 288-291]

“If it’s good and they know where it’s coming from, people at the Indy markets don’t even bat their eyes at the prices. And it really broke my heart to not support my local market, but we just couldn’t. It just was not going to cut it.” [Kelsey Todd 236-238]

In general, farmers felt that most consumers in ECI lack an understanding of locally based agriculture and the cost and processes associated with farming and food production.

“Everybody looks at a pound of hamburger and says, oh my gosh, $4.75 for a pound of hamburger. They do not see $4.25 diesel fuel and $400 tires - they do
not see any of that. They see $4.75 for a pound of hamburger and figure you have to be making a killing on it. Well, it’s not that simple.” [Stan Chalmers 284-287]

“If every customer we have understood what goes into what we do, it would be so much easier for us to do our job. The number of times we have to hold our tongue because someone thinks we charge too much for this or that, or maybe the quality isn’t exactly… If that kind of education was all out there, it would be so much easier for us to do our job. But there’s ignorance about the labor that goes into it, the cost that goes into it - sometimes it just makes you want to quit!” [Rachel Wolcott, 606-612]

While producers felt fairly satisfied with the prices they received for their products, several also felt that the strength of the market affected what they could produce on their farm. Several farmers, for instance, had an interest in switching to more organic or “natural” practices, but did not think enough customers would be willing to pay the extra premium that would be required to support this type of production. Many farmers also felt that they could not raise their prices to account for increases in production costs because of competition from big box stores and consumer expectations for low prices.

“We haven’t really done a price increase in 10 years, and we haven’t been able to because people see the Wal-mart prices on TV, and they see the Wal-mart price when they shop for anything else. So, if they make the drive all the way out here, they’ve used their gas, they’ve used their time, the last thing they want to see is a higher price. So even though they may perceive the quality is better, price these days is the kick in the back of the head.” [Janice Hunt 310-314]

“Our customers are used to the price, so they won’t like the fluctuating up and down.” [James Sinkel, 319-320]

“My labor’s not worth much. If I charged for labor on anything, I couldn’t sell it. I’ve had to raise my price now some, and it’s cut our business way down, and I’m still cheaper than anybody around.” [Dave Potvin 120-121]

Farmers also perceive the cost of organic production to be particularly high in this area. Since there is not a well-developed organic sector in ECI, they say, it is more difficult to access some of the inputs needed for organic production (e.g., fertilizers, feeds, approved
pesticides, etc.). In general, most note that Indiana, and ECI in particular, has been slower than many other areas to adopt the local and organic food movement.

“I think Indiana’s just a little behind. There was definitely much more appreciation for organic produce and food that’s been grown well and high quality where I was before.” [Amy Greenwood 158-159]

“I’ve been known to go to the dark side - organic fruits and vegetables… I’m doing strange stuff, which, for around here, strange means I try very hard to do no sprays or chemicals.” [Jake Goodam 290-295]"

Farmers said that, from their experience, most customers in this area are not overly concerned about purchasing organic products, but are most interested in knowing the producer of their food, and sometimes their production practices. Customers seem to be satisfied when farmers explain their rationale and practices in regard to chemical use. Farmers often pointed to larger-scale economic forces that affected the markets for their products. Many mentioned the current economic recession in the U.S., although it was viewed to have both positive and negative effects on the market for local products. Farmers linked consumers’ low willingness to pay to job losses and lowered incomes over the last several years in part, especially noting the decline of manufacturing industries in ECI.

Many of the farmers in this study found reaching their customers through marketing to be a significant challenge. Marketing for local products was often described to be extremely time-consuming, and often expensive. Farmers talked about cost concerns with print media advertising, and the problem of decreasing readership of newspapers and other more traditional advertising venues. At the same time, although many of the farmers were technology savvy and had succeeded through web-based marketing, a number of producers felt intimidated and struggled to develop an online
presence for their businesses. Almost always, producers said that word-of-mouth had been their most successful means of advertising. Still, a number of farmers talked about their troubles with exposure and increasing the size of the markets for their products.

“When you don’t have like a retail presence somewhere, it’s hard to advertise because people don’t know where to find you. And people that go to the farmers market are going to the farmers market anyway. Sales is the problem.” [Stan Chalmers 93-99]

“As far as developing new customer base, I wouldn’t say any of our advertising is particularly effective as far as being able to point to one thing.” [Clark Dunham 143-144]

“I am still amazed, as long as we’ve been here, how many people when the newbies come out, they say, I’ve lived in this town all my life, and I never even knew you were here.” [Eunice Sinkel 63-67]

Farmers also seemed attuned to the issue of market competition. Many mentioned price competition with big box stores and grocery stores as a challenge for selling their products, often linking marketing challenges to the public’s desire and expectation for “cheap food,” and one-stop shopping. Yet, many farmers also readily described competition with other local producers, although it seems that farmers have differing definitions of what it means to compete with one another. Some farmers see their consumer base as being limited to a fairly small geographic range, or perhaps to a particular type of consumer, whereas others feel that anyone nearby growing similar products is competition.

“The biggest challenge for me farming here has been to grow something that does very well, and that everybody else doesn’t grow.” [Neil Ford 354-355]

“Other farmers say, ‘Well, I don’t know how you can sell it at that price.’ And it’s like, well, I don’t compete with you. I don’t live on your side of town. We don’t compete with other vendors, and we don’t compete with the grocery stores.” [Eunice Sinkel 204, 282-284]

“One of the factors is that we have friends who have a similar farm 25 miles east of here. And so, out of respect to them, I was very intentional not to market or
infringe on their territory. I didn’t think I would anyway, but I went extremely out of my way not to do that. I didn’t think I would need to market, for one, but also, I very intentionally did under-marketing from what I would have out of respect to them, which kicked me in the tail.” [Clark Dunham 177-183]

A number of producers mentioned the increasing influence of Amish populations in the small farming community in a number of ways. Non-Amish farmers seemed to have a general respect for the Amish way of life and the quality of Amish produced products, although several also felt that they have a difficult time competing.

“I think these days, the Amish are the only people that are willing to really put in the kind of effort it takes to make something like this go… And the Amish are going to be real competitors for anyone else who wants to do small farming because they are working hard at it - they are doing all of the information gathering and research. And I admire them. I wish them well, but I can’t compete with them in price.” [Janice Hunt 391-401]

“The reality is that the quality is very high and the prices are very low at the auction. In essence, I just became familiar with that this year, so it takes out all the incentive - all the backbreaking and whatever to get your product up.” [Clark Dunham 276-279]

Many farmers described being frustrated with competition from “non-growers” in local food markets (this was particularly true for those who sold products at farmers markets). According to farmers, some vendors often purchase food from local produce auctions and resell it at farmers markets or roadside stands, with little or no indication to consumers of where the food came. Several farmers openly described conflicts or contention with “non-growers.”

“It’s just that whole undercutting thing. If you go buy produce cheap at auction and you don’t have anything in it, you can sell it cheap. And I can’t compete with that. So it’s really hard. It really has driven prices down.” [Amy Greenwood 137-140]

“There’s like two schools: the people who grow it themselves who are fed up with it, then there’s the people who buy it and sell it and make money doing nothing. So it’s pretty divided.” [Kelsey Todd 241-242]
“It’s not so much an open conflict as it is kind of a seething wound [laughs]. It’s something that those of us grow our own are very proud.” [Rachel Wolcott 288-289]

“I don’t even speak to those people [non-growers].” [Ginny Morgan 325]

“There has been a lot of conflict between growers and non-growers. And they’ve kind of tried to separate the people that had the worst conflict - literally physically putting them at opposite ends of the market [laughs]. And not everybody has been in that, but it definitely has been an issue.” [Amy Greenwood 145-148]

Many farmers seemed to view this practice as an issue of deception. They seemed somewhat indignant when comparing their own labor and investment spent in bringing their products to market to their “non-grower” counterparts.

“It’s the perception. Because like I said, people had no idea that there was even an Amish auction - they had no idea that people went and bought stuff.” [Ginny Morgan 306-308]

“Every time they go and sell something they bought, they don’t put no work into, we bring stuff home… It’s a farmers market. If you aren’t growing it, you’re not a farmer. That’s false advertisement, that’s cheating.” [Rod Morgan 304-313]

“I’ve actually started telling our customers that those of us who grow our own produce that we sell appreciate their patronage because we work hard. I’m not trying to put any of the others down, but at the same time… A lot of the customers are looking to support local families and farms, so if that’s what they’re trying to do, I want them to know that that’s what they’ve done.” [Rachel Wolcott 281-286]

Still, there seemed to be a range of acceptance for this type of market competition. While some farmers were adamantly for a grower-only model at farmers markets, others felt it was acceptable for vendors to engage in some resale, as long as they primarily produced their own goods. In fact, some producers in our study engaged in resale as a way to supplement their own products to offer more to consumers, to increase their profit margins, and/or to have a source of backup income in the event of a crop loss; they seemed to feel it was an important way for them to ensure a more stable income from their farm. Other farmers discussed the auction itself in a positive manner, simply
offering farmers another potential outlet to sell their produce. Several farmers sold either regularly or occasionally at produce auctions and appreciated having an additional place to diversify the sales of the products.

Structures and Regulations

Almost every farmer in this study mentioned regulatory issues at some point during the interview. Many felt that small farmers were overburdened by excessive or unfitting regulations from the federal and state level. For the most part, farmers felt that policies were enacted with large-scale operations in mind. Many regulations, they felt, were inappropriate to their scale, making the compliance process onerous - both time and cost prohibitive. Farmers in our study also felt disadvantaged by government subsidy structures that favor large-scale production, noting that the system encourages cheap food, making it harder for small farmers to compete. Several farmers felt that government “got in the way” of what they needed to do to be successful in operating and growing their farm.

“I’m not a government person.” [Dave Potvin 329-330]

“Well, if the government would get out of the way and let everybody go head to head, I could compete. The problem is that with our subsidy structure, it does not favor what I do. It favors row crop production, which means you can’t compete for anything.” [Stan Chalmers 112-114]

“I don’t like government intervention at all…(speaking of health regulations) It’s a one size fits all rule that just simply doesn’t fit me, and it wouldn’t fit anybody else doing what I’m doing…” [Charlie Stedman 471-480]

Many farmers expressed concern over predicted changes in health and safety regulations. According to farmers, GAP (Good Agricultural Practices) certification procedures were slated to change in a way that would require additional costly certifications to sell their
products. Farmers worried that with their already slim profit margins, any increase in regulatory costs would hurt their operations. Farmers also felt impeded by disjointed regulations at the more local level. Several farmers mentioned that varying health regulations from county to county, as well as varying requirements from market to market, made the process of selling their products confusing, time consuming, and costly because of the need for multiple certifications and verifications.

“Everybody’s got problems with - every time you turn around there’s this permit and that permit. Every market I go to, I’ve got to have a board of health permit in order to give samples. In order for me to give a sample to a person, I’ve got to acquire a board of health permit to do that, in every county I go into, a different one.” [Frank Winchester 295-300]

“The problem we had was that the health department permits were too steep for us. You have to get one for every single event, which is every time you sell. And it’s county by county. Every county health department has the right to set their own rules, and before you go there, you have to check.” [Rachel Wolcott 185-190]

Although a majority of the farmers in our study viewed government regulations to be a barrier, there were some exceptions. Several producers mentioned taking advantage of recent grant opportunities such as USDA high tunnel grants, or other incentive programs. Most farmers also seemed to be apathetic to regulations requiring trainings for pesticide and fertilizer application. A few producers suggested that government could sometimes be an asset.

“There’s a lot of folks that we hear in particular that live in this area that they don’t want the government involved with them at all. But the government will give you money if you work within their guidelines. So if the government’s willing to give me my taxes back, I’m perfectly willing to work with them. And they know what they’re talking about.” [Marcie Long 382-385]

“It’s the government. I mean, it’s just the weirdest things. Although we love them for our new high tunnel.” [Ginny Morgan 553-554]
**Time and Labor**

The farmers in this study were extremely busy. Nearly all farmers mentioned time, or lack thereof, as a constraint on their operations in some fashion. Several farmers worked full-time jobs on top of farming, so they struggled with being able to expand their operations or having the time to implement new practices. While some of the farmers aspired to leave their off-farm job in order to farm full-time, several farmers viewed what they do as a lifestyle choice that must be supported by an off-farm income. Yet, time was limited even for the full-time farmer. Those who farmed full-time often described struggling with being able to get everything done when it needed to be.

“I just always have more to do than I can handle in a really excessive way... And a lot of that is becoming more efficient, but that’s something I’ve really tried to pay more attention to in the last few years.” [Amy Greenwood 315-321]

“Our biggest problem is time... We’re pretty much tied down when it comes to this.” Ginny Morgan 575-585]

Struggles with marketing were also often described with relation to time, or not having enough time to learn about and set up new marketing avenues. Many farmers talked about struggling to become more efficient with their resources, and especially with their time.

“I wish I had more time to focus on the marketing, because with both of us working full-time outside of the farm, there are so many things that we want to do and need to do that there’s just not enough hours in the day to get to them. I think if I could dedicate some more time to it, we could see the changes and progress that we want to see sooner. But it’s kind of one of those things that you can only juggle so many balls at the same time.” [Regina Chalmers 437-441]

“Marketing takes a lot of time, but I think we do it pretty well for the limited resources we have.” [Kelsey Todd 287]
Farmers also discussed time in a more long-term sense. Many farmers felt limited to what they could do with their operation because of their age, commonly talking about the ways they might change their operation, “if they were younger.” Some farmers said they would like to expand or do more things, but that they started too late in life to really make it worth it (a number of farmers did not really begin selling from their farm until retirement age). Many note that the work is just too hard to continue doing at the same rate as the body ages.

“I don’t have enough of my ass left.” [Jake Goodam 261]

At my age, I’m just glad to have a crop of something every year, a decent crop every year. And I’ve downsized some because of the things around here. My age and our health and different things.” [Neil Ford 457-458]

Many farmers struggled with hiring labor to help ease their time constraints. For many, the cost of labor was too high to justify at their scale.

“Until we can get to the point where we can hire people or expand enough, we’re stuck on the farm- that’s just all there is to it. Even then, you try to live life and farm [laughs]. And I suppose there’s nothing wrong with it- it’s just that we’re maxed out.” [Jasper Ammerman 74-81]

“It’s that thing where I don’t make enough money to hire somebody else, but if I don’t hire somebody else, I can’t get everything done.” [Amy Greenwood 283-284]

“At one time, when I had a lot of veggies on the back two out there, I had up to 8 people, and I just ended up paying everybody and didn’t end up making any money.” [Buck Rosevald 148-149]

Others struggled with being able to find workers who were able to do the work to their standards and stay long enough to become skilled at the job. Many farmers felt not only that “kids don’t know how to work anymore,” but some also worried that people in general may not have as much interest in farming as they used to.
“It’s getting exceedingly hard to find decent employees. I can hire teenagers and they want to work, and they start out saying, how many hours can I work? And then, when it’s 108 degrees, they don’t show up, and then they quit because it’s too hard. The other thing is finding anyone that wants to work that’s interested in plants.” [Janice Hunt 322-334]

“I’ve tried to encourage some young people that they can do this as a sideline if they want to - have a job and do this. A young couple that’s ambitious and don’t get tired easily. Some of them aren’t interested in it, but they’re content in what they’re doing. They maybe have a small interest, but they don’t want to go there.” [Neil Ford 259-262]

*Risks*

Farmers described several types of risks and strategies for risk mitigation in their operations. Not surprisingly, farmers most often felt that weather posed one of the greatest risks to the operation, and was the factor over which they had little to no control. Most of the produce farmers in our study had some type of irrigation system in place, although irrigation could not completely control for extreme temperatures, or even extremely dry conditions. Some expressed concerns about their operations given increasingly unpredictable weather patterns and demand for water. Livestock farmers also felt the effects of the variable weather, especially through fluctuations in feed costs. Farmers also felt pests and disease to be significant risks to their farms.

Several farmers also found their personal health to be one of the greatest risks in farming. With the labor intensity of small scale farming, several farmers expressed concern that becoming ill or injured could significantly impact their farm.

Many farmers also seemed to be especially concerned with the risk of consumer illness and/or lawsuit due to improper food handling. Farmers explained that while their products and handling procedures were in compliance with safety regulations, they could not control how their consumers handled their food. Many consumers, they explained, do
not understand the difference between the raw products they sell directly (requiring washing and proper refrigeration), and many of the “ready-to-eat” products found at grocery stores. Several farmers mentioned the high cost of liability insurance they must incur to sell their products. Many farmers seem worried, especially being aware of recent salmonella and e coli food scares, that they might get sued due to a customer’s misunderstanding of how to handle raw food products.

“One of the biggest risks when you raise produce is worrying about, what if people get sick? Are they going to sue me? The ‘outside world’ doesn’t know where food comes from, especially in the city.” [Peter Samson 138-140]

“If John Doe decides to sue, I have to carry a million dollar liability insurance policy on the products I sell off the farm here, even if I just sell from the roadside. And then, of course farmers markets, they all require that, and you’ve got to name them as being exempt from any liability. If a customer slips and falls in front of your booth, the market’s not liable, it’s you. So, I mean, it’s all these stupid little rules and regulations that you’ve got to put up with. People are sue happy, you can’t just be open and honest like they used to 50 years ago like I remember.” [Frank Winchester 349-354]

The farmers in this study used a variety of strategies to reduce risk in their operations.

The main way of avoiding risk for small-scale farmers in our study seemed to be supplementing the farm income with another source of income. Usually either the farmer or a spouse (or both) earned income from an off-farm job, or farm income was supplemented by pensions and/or social security payments or other sources, although there were several exceptions. A few farmers explained that because they did not expect their farms to be extremely profitable, they did not feel as subject to the risks of crop loss or crop failure.

“Farm accidents are our only real risk. We don’t have to do this. We do it because we like to be busy, and it’s fun.” [Charlie Stedman 328-329]
“We really don’t have no risks. We don’t rely on this as a living, so if we fail, we bitch and complain and that stuff.” [Ginny Morgan 457-458]

Many of the farmers in our study reduced the risk of catastrophic loss by finding creative ways to diversify their farms and their sales. Farmers planted a variety of crops to protect against damage to a single crop, and livestock farmers also often supplemented their farms with the sale of vegetable crops (or vice versa). Some farmers included value-added\(^4\) products or other commodities as part of their business. A few farmers engaged in agritourism-type activities as a way to have steadier profit streams. Still, others relied partly on sales of produce purchased from auction or from other farmers to supplement their own items in times when they had a poor crop (or in some cases, on a regular basis).

Farmers in our study also made adjustments to some of their practices on farm both to become more efficient and to reduce risk to themselves. For example, one orchardist described his decision to plant dwarf varieties as a way to make the work easier and to reduce the chance of personal injury. Another described switching to an innovative upright growing technique after suffering from a back injury. Still, several others discussed making healthier eating choices as a way to protect themselves from long-term health risks.

A few farmers explained that one of their reasons for switching to more organic growing practices was to protect their health and reduce their exposure to chemical sprays. Interestingly, though, only one farmer in our study chose to seek organic certification. While some farmers were committed to raising organic products, most

---

\(^4\) Value-added agriculture increases the economic value of products through specialized production methods (e.g., organic produce, grass-fed beef) or through additional manufacturing processes (e.g., salsa, soaps, etc.) (Ag MRC 2013).
farmers preferred a limited, as-needed-only type approach (like IPM$^5$). Several farmers explained that while they farmed mostly without chemicals, they preferred not to certify so that they could reserve the right to spray in order to save a crop. Choosing not to certify organically, then, seemed to act as a way for some farmers to hedge against the risk of a crop due to pests and disease.

“We’re not certified. We don’t market it as organic because if we have to spray something stronger, we will. And I think we need to reserve the right to be able to use something if we have to because you can’t lose a whole crop to a fungus… And I know there’s some pretty good organic pesticides and things, but I don’t feel that I’m skillful enough as a farmer to catch it early enough.” [Kelsey Todd 138-152]

“We’re not organic - we’re not certified, but I usually tell people I’d still rather go chemical than lose a crop. There are growers out there that will lose their crop rather than using chemicals just to stay organic or whatever, but I would still go chemical just to save the crop.” [Brian Klug 209-212]

While the farmers in our study carried liability insurance to protect against consumer food safety concerns, other types of insurance, such as crop insurance, seemed to be considered less accessible. Several farmers explained that things like crop insurance were not as familiar or established for small producers as they might be for more conventional crops. Several small farmers felt that the process of obtaining crop insurance for their products was overly complicated and that insurance was not well structured for selling directly to consumers. Most were also doubtful whether the cost would even be justified at their scale. Some farmers seemed to find themselves in a sort of insurance donut hole, where they felt they were not large enough to justify the cost of insurance, but were too large to absorb the cost of a crop failure.

---

$^5$ Integrated Pest Management (IPM) is an environmentally sensitive approach to pest management that uses a variety of common-sense practices to limit the need for pesticide application. IPM uses information about pest life-cycles and ecological relationships to control pests at the lowest cost and least possible danger to humans and the environment.
“They don’t offer insurance on the crop we grow. Hell, we have almost $500 per acre invested here. But you can’t get insurance. You’re out here on a limb.” [Ed Workman 368-371]

“Right now we have not been able to justify paying for what we have seen. It’s kind of that small farm deal. We’re so small that crop insurance isn’t… the expense doesn’t justify. You’re kind of caught there- you kind of wish there were some sort of sliding scale. This is how much we put out every year, so a percentage of what we produce would be a fair dollar amount for insurance.” [Rachel Wolcott 384-388]

Environmental/Ecological Factors

Farmers felt that for the most part, the farmers identified the biggest positive aspects about farming in ECI to be the good soils and climate for growing crops (and, in fact, many were hard pressed to come up with anything else that they viewed to be particularly positive about our farming region). Yet, farmers also felt that much of the land in our area was “tired” from conventional agriculture practices. Many farmers criticized or commented on the use of crop rotations (or rather, lack thereof) as an example of the lack of diversity in modern agriculture.

“I have found that to raise good products, you’ve got to have good soil. When you go and do corn and soybeans year after year, that soil is depleted - and putting mechanical fertilizers in there is not the thing.” [Glan Grabow 198-206]

“Some of these farms haven’t had any legume crop other than soybeans planted on them in over 20 years. It’s beans and corn. Beans and corn, because that’s where the money’s at.” [Neil Ford 141-142]

Several farmers discussed struggles with maintaining and/or improving soil fertility, especially farmers who were farming land formerly in conventional production.

“Starting with depleted soils on our land has been challenging.” [Garrett Martin 120]

“The land was in really poor shape when we got it, and it’s taking a long time to build the ground back up. We realize it took a long time for it to get that way and
it will probably take a long time to build it back up, but we would like for it to happen faster.” [Clint Mattock 55-57]

Several farmers also mentioned issues related to chemical drift as a challenge for growing organically. A few farmers mentioned that even if they wanted to certify their farm organically, it wouldn’t be possible because of their proximity to other conventional farms. Still, some farmers perceived that organic production was not possible in ECI because of pest pressure, and to some extent because of limited knowledge of organic practices.

“You can’t not spray - especially bugs. When you’re farming this much, I don’t see how people- even organic farms. I mean, is organic really…? There’s a fine line there, I think. I think they can use some.” [Ginny Morgan 265-267]

“I wouldn’t know how to take care of organic stuff. I don’t read up on all that stuff. But the bugs will eat the stuff up unless you know what to do.” [Eunice Sinkel 365-367]

“People ask me, do you have organic fruit? I say, if I did the fruit would be so ugly you couldn’t even give it away. They have some fruit in the stores they claim is organic, and I don’t know how they do that.” [Neil Ford 293-296]

**Farmer Learning and Education**

*Farmer Background and Identity*

The farmers in our study came from a variety of backgrounds. While many of them grew up working on farms, a number of people came into farming by their own means. It was interesting to find that several farmers did not consider themselves to be farmers either because of their size or because of their farming background. Some farmers seemed to define their identity as farmers in comparison to the dominant model of agriculture in the area.

“Sometimes I think I’m not a farmer because I’m not that big, or because of the way I produce.” [Peter Samson 83]
“I know that we are a hobby farm, but I do not consider myself a farmer. And I think that’s the hereditary thing. I think if I had grown up that way, I probably would.” [Barb Newman 167-169]

Some seemed to feel it would be unfair or inaccurate to call what they do farming because of the scale of what their neighbors or conventionally farming counterparts do.

“I guess I’m still just 5 or 6 years into this, so I have just never called myself a farmer. And part of that, too, is I know real farmers who farm on a large scale who would not consider me a farmer. You know what I’m saying? So I want to be respectful, too, in the sense that what I do here is nothing compared to what they do.” [Barb Newman 265-268]

“I don’t even consider this a farm because all of the farms around me are hundreds and hundreds of acres.” [Dave Potvin 77-78]

A few farmers seemed somewhat indignant that others did not consider them to be a “real farm” because of the scale of their operations.

“There’s some people that are… I’ve got a kid at work that swears up and down that this is not a farm - it’s a big garden. And I’m like come on. To me it’s a farm.” [Ginny Morgan 136-139]

“I think one of the frustrations has been the assumption that agriculture has to be big to be successful. I mean, big does work, but I don’t think that’s the only way, and I think people need to realize small farms can be diverse and be successful and that we should encourage more of that because not everybody can buy 5000 acres and two combines and do that kind of a style.” [Marcie Long 244-247]

There seemed to be an unfortunate view among a few of the farmers in our study with less formal education that they were not book smart, making a point to say they were “stupid,” or they “didn’t know anything,” or “I’m just a simple country boy.” Yet, most of our farmers viewed farming as a challenging intellectual endeavor. They described being able to use their skills to learn and research, and found farming to be a stimulating, intellectual pursuit.
“Farming was one of those things I learned growing up that I didn’t ever think I was going to use. I kind of got the surprise of my life when - that’s what I’m doing now, and I like it. I’ve got a college education, and I use it in ways that are not what I thought I would. But it’s not like I’m not using it; I still am because there’s a lot of science to what we do.” [Rachel Wolcott 116-120]

“Farming combines a lot of things. I mean, there’s a lot of thinking and problem-solving, and there’s always new things to learn and new ways to do things.” [Amy Greenwood 217-219]

“I think if I had to say the one thing that I love about my job is the diversity. No day is boring. I just love the diversity and I love the challenges of juggling all the balls and doing all the things.” [Janice Hunt 367-369]

**Farmer Learning**

Farmers in our study described learning as an ongoing and constantly changing process. They noted that they were continually trying new experiments and using results to make adjustments on their farms. Many of the farmers described their learning process as being fairly independent, and coming mainly from trial and error, or learning by doing. Often, farmers seemed to take pride in earning their degrees from the “school of hard knocks.”

“It’s just something that you lose and gain, learn by experience.” [Brian Klug 55]

“I learned from [flying by] the seat of my ass.” [Jake Goodam 233]

“Over the years, it’s a compilation. If it’s not only your job, but your hobby and your passion, you can learn a lot in a short time.” [Janice Hunt 52-53]

“It’s really been more learning by trial and error and stuff, but I started in a very good place, and it’s just something I pride myself in being very efficient and successful within my capabilities.” [Clark Dunham 336-338]

Some farmers, especially those who had spent more time in school, seemed to take a more academic approach to learning and research, reading academic journals, researching online, and consulting with specialists. Others seemed to take a more hands-on approach, trying and learning from their own experiences, consulting with other farmers, and
consulting less academically focused sources. However, all the farmers in our study used a variety of resources when gathering information to aid in decision-making on their farms.

Educational Needs

Many farmers felt that their educational needs were underserved. Resources like Extension, they mentioned, typically favored conventional farming. They especially felt that there was not adequate information for growing horticultural crops in our soils and climate region. Several mentioned frustration in seeking information either online or from Extension, and only being able to find information relevant to faraway places.

Several felt that traditional educational resources such as Extension have little to offer for small-scale or more non-conventional growers.

“‘My impression is that Purdue is much more focused on the conventional. I mean, there’s not much for organic growers. The stuff that they gave me wasn’t particularly helpful.’” [Amy Greenwood 358-359]

“It’s just that when you read and you go to conventions, you realize that Indiana is really, really far behind in the fruit and vegetable business. Even your extension agents and everything don’t seem to be real proactive. And that’s not entirely their fault. There’s maybe not enough fruit and vegetable growers like there may be in other states. So you can’t really fault them here, but I just wish we could have a little bit more sometimes.” [Stephanie Fairchild 203-208]

Some farmers felt frustrated with many of the available educational resources because they were “overly academic.” They often felt that educators did not have adequate hands-on training, or that they did not make enough farm visits to fully understand the situation. Many seemed to prefer learning from other farmers, or at least from others with hands-on experience.

“If they’re agriculturally minded, they do very good. If they’re a city person, they did not learn enough in the books to help you. They’ll tell you, bring it up, and
we’ll look it up in the book. They’ve got the degree, but they haven’t got the common sense knowledge. You could write a cookbook, but that doesn’t mean you could cook.” [Ed Workman 268-273]

“When I’m trouble shooting, I’d just as soon have somebody who’s hands-on done it. And sometimes there’s no way those extension people can have experience in every single one of those things.” [Barb Newman 388-390]

On the other hand, some farmers felt very positive about the help and support they had received from Extension and other resources.

“Our extension system here in Indiana is just dandy.” [Jasper Ammerman 58]

“I wouldn’t want to do without them. They’re the people that know stuff.” [Brian Klug 350]

Farmer Networking

Farmers often described learning from and receiving support from other farmers. Many discussed finding valuable relationships at various conferences, and found it helpful to be able to talk to other farmers who are doing similar things.

“The friendships and the networking that I’ve made through some of the groups I’m in… Sometimes when you get to feeling that you’re burnt out and don’t know if you can keep going - then I would take off for that conference, and I would just come home so renewed and full of ideas and ready to just gung ho, and charge, back on top of the world. I think organizations like that where the members are so willing to share information… those kinds of things are just vital for a small farmer, especially a person that’s trying to do it as an individual. It’s kind of like your little mini support group.” [Janice Hunt 437-448]

“I do go to conferences and workshops and when I have time I like to go on farm tours. It’s fun to see what other people are doing and get ideas.” [Amy Greenwood 212-214]

At the same time, many farmers seem to be somewhat disconnected from each other. Few farmers were able to describe many others in ECI who were doing similar things as them, and often farmers were only able to identify others farmers who attended the same market as them. Some farmers felt that there simply weren’t very many similar producers in the
area, while others felt the farmers were around, but they just weren’t acquainted. One
farmer mentioned her disappointment at the lack of a strong communal feeling among
small farmers in the area.

“I feel incredibly isolated here. There is nobody around, not in our county. And I
know there a couple other people in our county, probably, but there aren’t many
small farms that are doing non-conventional farming.” [Amy Greenwood 100-
102]

Most farmers in this study seemed to be open to the idea of a more formalized network
for small farmers in ECI, although they expressed several concerns. The biggest concern
was that any type of commitment comes at the extra cost of time. Farmers worried that
the benefits would not be worth their time, or simply that their time would be better spent
on the farm.

“I mean, it’s one of those things that always sounds good on paper, but somebody
actually has to do it, and that’s were it usually falls apart. Because nobody’s got
the time to do it well.” [Marcie Long 429-430]

“I enjoy meeting people - I like that aspect of it. I also like the sharing of
information part of it. What I don’t like is busyness.” [Barb Newman 422-423]

“It’s one of those things that you’ve got to be careful what you wish for. My wife
and I have very full plates. To discuss that as a possibility, even though it might
be interesting, would probably lead to us having to do something about it. And
neither one of us feel like we can take that on.” [Ben Hagmann 426-429]

Still, some farmers had reservations about the idea of participating in some type of small
farm network because they were skeptical of the expertise of other farmers in such a
group.

“I want to know the answer from somebody who knows, not just somebody who
has the same problem.” [Clint Mattock 188-189]

“Sometimes I get information from other farmers, but that’s kind of like, take it
with a grain of salt because you don’t always know what they’re really telling
you.” [Kelsey Todd 428-430]
On one hand, it seemed that farmers found the knowledge gained from each other as an important resource. Several farmers seem to support the idea of cooperating with other small farmers to share ideas and resources.

“I think it’d be helpful in terms of sharing information and that kind of thing, but it also would just make the sense of community a little bit larger. I go to the Indy market, and there’s a really strong sense of community among the growers there. I feel a little on the outside of it just because I’m in a really different setting than those folks are.” [Amy Greenwood 401-404]

“It’s interesting, having other peoples’ experiences, reading it and that kind of stuff. You learn a lot of from other people, I should say - or I do, anyway. [Brian Klug 360-369]

“I’ve always thought there’s value obviously in comparing notes with other growers if you can get past the competitor perspective. “ [Clark Dunham 381-382]

Yet, on the other hand, several farmers seemed to think there might be a limit to the degree that farmers in the area would be willing to cooperate with each other and share resources and information.

“Not everyone’s going to be your best bud, but the people who are reasonable and open hook up. So that’s what we have been doing. There’s people around here that are very competitive and secretive and guarding themselves all the time. I try to exercise my faith in those matters and realize that there’ll be plenty for me.” [Jasper Ammerman 157-160]

“Farmers are kind of independent on some things. Some of them want the help, but then you get some, I don’t know where they come from, but, they have no idea how to grow shit at all - they talk about disaster hits. Well, who wants to be the only person out here in the whole damn county?” [Ed Workman 339-343]

Summary

• Farmers in our study have very diverse operations in terms of items produced, income, background, farm size, and farm type
• Farmers in our study have a variety of complex motivations for farming that are intertwined with the desire to make a profit. Motivational subthemes that arose from the interviews include farming as an inheritance, as a calling; health or environmental triggers; stewardship; lifestyle; and community

• Farmers perceived several significant barriers to the sustainability of their operations. Subthemes related to barriers to sustainability include: markets; structures and regulations, time and labor; risks; and environmental/ecological factors. The largest and most complex category of these themes by far was market barriers.

• Given their diverse backgrounds, and operations, farmers in our study described several preferences and needs in regard to learning and education. Important subthemes that arose include: farmer background and identity; farmer learning; educational needs; and farmer networking
DISCUSSION

In this chapter, the results of our study will be discussed in detail. The first section will discuss the descriptive population data generally, and the proceeding sections will analyze the interview results theme-by-theme, elaborating on important sub-themes and comparing our results to that of previous work. Implications of the findings and limitations of this study will be discussed within theme analysis, and suggestions will be made for future research. The final section will include conclusions of this research, as well as a summary of recommendations for future research.

Discussion of Population Data

Although generalizability was not the goal of this study, it is worth considering how our population of small farmers compares with small farmers nationwide. The population of farms in our study was extremely diverse in terms of production techniques, farm type, and operator characteristics. The average age of farmers in our study was consistent with small farm operators in the U.S. as a whole (the USDA reports the average age for farmers with sales less than $250,000 is 55-57 years) (2007). The distribution of farm sizes in our study aligns with national and state trends, where the largest category is farms fewer than 50 acres. Farmers in our study were less likely to work off-farm than other small farmers in the U.S. (41 percent of our farmers worked off-farm, compared to about 65-71 percent of small farmers nationwide) (USDA 2007). Interestingly, farmers in
our study tended to be more educated on average than U.S. farmers as a whole, and also more educated than small farmers in the United States. While, on average, less than 27 percent of small farmers in the U.S. have completed a college degree (compared to about 24 percent of all farmers) (Hoppe, et al. 2010), 55 percent of farmers in our study completed a college degree, and over half of those farmers attained graduate or professional degrees. Since there were errors in the data reported on farm income (discussed in the results section), it is not possible to accurately compare income data from our study to national trends, which indicate that the greatest proportion of farms reported sales and income of less than $15,000 (USDA 2007). Farm income may be an important factor to revisit in more detail in future research because it may give a better overall indication of the success and capabilities of small farms in the region. Future research should ask farmers to report annual farm sales/revenue, income, and expenses in separate categories (as opposed to simply reporting “income from farming”) to avoid semantic confusion and obtain more accurate data.

**Theme 1: Motivations for Farming**

The qualitative approach of this study was integral in identifying some of the more complex motivations farmers had for beginning and continuing their farming operations. Our results in this regard were similar to the findings of other studies, and are consistent with the overarching idea several authors have pointed out that, while profitability is important, farming is rarely a job motivated solely by profit (Karami & Keshavarz 2010). The motivational subtheme of “Farming as an inheritance, as a calling” shows that farmers in our study feel a strong tie with agriculture that goes far beyond farming as a business. The idea of farming as an inheritance also becomes important in the transfer of
knowledge and continued interest in farming. Since one of the main means of obtaining agricultural know-how is still through generational family farms, the idea of farming as an inheritance is as much practical as it is philosophical. That is, if we desire to sustain or grow the number of farmers into the future, a logical step would be to find ways to make staying on the farm or beginning a new farm attractive to children in farm families. Still, the subtext that farming, as one farmer put it, can “get in your blood” means that farming can be an appealing pursuit even for those with little farming background, and is perhaps one reason why the number of new farmers with little farming experience has grown in recent years.

The subtheme of “Health or environmental triggers” is similar to findings by Bullock and others (1997) in their study of conventional and “sustainable” farm families. In their Illinois study, “sustainable” farmers (as opposed to the conventional farmers) often described a particular tipping point at which they realized the negative impacts of the current food system on human health or the environment. In this study, the motivation of farming related to health or environmental triggers also seemed to be more prominent among farmers who were using or striving toward organic practices. However, the general disillusionment with our current food system seemed to be more widespread amongst farmers regardless of organic or non-organic practice. Interestingly, findings from other research areas regarding consumer motivations for choosing to purchase organic products also reflect these trends, showing both health and environmental concerns to be important in consumers’ decisions (Duram & Andrade 2005). Given that farmers may be reaching tipping points in terms of conventional food production and
switching toward more sustainable practices, it is encouraging that consumer support also seems to be moving in the same direction.

The subtheme of stewardship as a motivation in our study is unsurprising. Farmers are often described as having ties to the land, and numerous studies have found stewardship to be an important motivational factor for farmers of all sizes (Ryan, et al. 2003; Chouinard, et al., 2008; Lynn, et al. 1988; Reimer, et al. 2012). Farmers in our study felt a sense of responsibility to the land and were conscious both of the environmental impact of conventional agriculture, and also of the impacts of their individual farms. This is important because it indicates that farmers may be more amenable to making adjustments on their farms to provide ecological benefits. Still, as many authors caution (Karami & Keshavarz 2010; Lynn 1988; Pannell 1999), simply having a positive stewardship attitude does not assure conservation behavior, and especially not consistent conservation behavior. This idea is evidenced in our study by the range of definitions farmers seemed to have for what constituted good stewardship. Ahnstrom and others (2008) suggest that biological conservationists and farmers may have differing opinions on what is good conservation behavior, but it also seems that opinions differ equally or more between farmers. Promoting good ecological management, then, seems to be a worthwhile task given farmers’ predispositions to environmental stewardship, but it may continue to be a challenge finding solutions that are appealing from an environmental perspective as well to farmers’ diverse management ideals.

Farming is often described not only as an occupation, but also as a way of life (Ball & Wiley 2005; Ahnstrom, et al. 2008) so it is not surprising that lifestyle factors
came up as an important subtheme in our study. Previous research discusses similar motivations in terms of the independence of farming, the ability to work outdoors, and the challenge of the work (Sullivan, et al. 1996). Results from our study certainly also fit in with those findings, but also included more subtle aspects of farming as a lifestyle. Farmers in our study seemed to emphasize enjoying the physical nature of farm work, for instance, rather than just the outdoor work component. Our results also include family as an important part of farming as a lifestyle because of the indication several farmers gave that the farm was a way for their entire family to achieve a particular quality of life (i.e., eating healthier, having a slower pace of life, staying home to raise children, etc.).

One of the most important motivational subthemes from our study is farming for community. The finding that farmers indicated a sense of responsibility and connection to the community as an important part of their operations suggests that farmers are building social capital through their interactions and services. Not only are farmers providing a local source of healthy food, but they are often providing a source of public education for little or no cost. Farmers often discussed constantly educating the public about basic food systems knowledge, nutrition, environmental issues, and farming practices while selling directly to consumers. Thus, these face-to-face, direct marketing interactions are providing something certainly unavailable at most grocery stores. Many farmers also volunteered their knowledge by leading or participating in workshops for others to learn farming skills, so it seems that they are also providing a vital educational service to the farming community. Events held on a farm (also often at little or no cost) offer a place for community members to gather together and connect to form social bonds while also providing practical publicity for the farm. Past researchers have referred to this kind of
system, which addresses the needs of farmers, consumers, local economies, and communities as “civic agriculture” (Lyson 2000). In addition to broadening the scope of agriculture’s goals to include a more people and community focused approach, some authors suggest that civic agriculture has the potential to promote citizenship and environmentalism (DeLind 2002). Through their contributions to education, health, and increased community interactions, small-scale farmers in our study seem to be practicing a form of civic agriculture that is providing important benefits to the communities of East Central Indiana.

The finding that farmers in our study have a range of motivations for farming is important to agricultural policy because it may mean that stewardship programs with non-financial incentives have the potential to appeal to certain groups of small farmers. Still, as many other researchers have pointed out, economics can limit conservation behavior even in the presence of non-profit motivation, and the farmers in our study are likely no exception to this case. Farmers in our study rarely felt profit was a good measure of success, which may be an indication of the hardships involved in making this type of farming lucrative. That is, although farmers in our study were motivated by more than profit, the fact that profit was rarely mentioned as a measure may mean that farmers face significant financial constraints in the continued success of their businesses. Farmers may need additional support in planning for and increasing the profitability of their farms in order to reduce financial constraints and encourage conservation behavior.

The stewardship and community values that farmers in our study expressed provide positive externalities for the public as a whole, suggesting that the small-scale, local farm model is worth preserving not only for economic, but also for non-economic
reasons. Of course, this study is limited in perspective in that we did not compare the motivations and perspective of larger scale conventional farmers; and, indeed, many larger scale farmers may also have similar motivations and provide some of these same benefits. Still, it is unlikely that the same level of community interaction and connection with the food system occurs in commodity agriculture as it does when products are marketed directly to consumers and through local markets.

Theme 2: Perceived Barriers to Sustainable Agriculture in ECI

Farmers identified a number of barriers to the continued success of their farms, providing practical insight into the nature of small-scale farming in ECI and in the U.S., as well as a basic framework for adjustments which could be made to encourage the development of the local food system in ECI. Several of the barriers experienced by farmers in our study were similar to those experienced by farmers nationwide; however, some of the barriers were more pronounced and/or more specific to the ECI region, suggesting the need for locally based agricultural policy.

The fact that farmers discussed markets as a common barrier is consistent with other findings (Gebremehdin & Christy 1996; Cantor & Strochlic 2009; Hall, et al. 2006). Farmers’ suggestion that ECI consumers have a particularly low willingness to pay for local products may suggest a regionally specific barrier related to economic development. Farmers often linked willingness to pay with reduced income and education in ECI while discussing consumer attitudes and their decisions to travel to the Indianapolis area to market their products. This link is consistent with county-level census data.6, and may

---

6 ECI counties have some of the highest poverty levels in the state, ranging from 16 to 24%, compared to the Indiana state average of 15%. Unemployment is also higher than the state average, ranging from 10.5 to 11.4%, compared to 9.0% in 2011. Educational attainment in ECI counties is lower than the Indiana state
lend some support to suggestion by Deller and others (2003) that a vibrant rural economy may be necessary to support small-scale farms, and not vice versa. Of course, it is entirely possible that ECI consumers have a relatively lower willingness to pay for reasons other than income and education. Although consumer attitudes are beyond the scope of this study, future research concerning consumer demand and willingness to pay for local products would help to give a better picture of how market conditions could be improved to support small-scale agriculture. Still, farmers’ indication that ECI consumers as a whole (including their own customers) lack understanding suggests the need for increased public education about agriculture and food systems.

Another interesting regional consideration is farmers’ views that the organic and local food movement has been slower to develop in ECI than in other areas of the country and other areas in Indiana. This view is consistent with the history that Meter (2012) provides in his recent study, which describes the local food movement in Indiana beginning in the southern portion of the state in the 1970s and not really becoming pervasive in other areas of the state until decades later. Because the use of alternative practices may not be as well developed in ECI, farmers may feel additional pressure to conform to the conventional mode of production, as evidenced by statements of how “strange” farmers felt their use of organic practices was in the area. In this way, the regional setting may present additional social barriers to the adoption of more sustainable practices in ECI. From a fiscal standpoint, additional challenges may be created because, as farmers suggest, inputs for alternative practices are more difficult, and often more expensive to come by because of the lack of suppliers and infrastructure to support this.

average for completion of a college degree, ranging from 10.4% to 16.6%, compared to 22.4%, with the exception of Delaware County, which has a completion rate of 22.4% (USDA ERS 2012).
type of production in ECI. This, of course, is likely to raise the overall price farmers must charge for their products, which is troublesome given farmers’ perceptions of consumer willingness to pay for local foods. Since this was not a comparative study, however, it is difficult to tell the extent of this challenge compared to other areas in the state. It would be interesting for future research to explore the extent of support for the local food movement between ECI and more (supposedly) progressive areas of the state in terms of both farmer attitudes as well as supporting infrastructures available. Given farmers’ perceptions of customer attitudes in ECI, as well as the difficulties many farmers described in terms of effectively marketing their products, additional support may also be needed to help farmers expand their markets and speed the development of the local food economy.

Farmers’ perceptions of market competition as a challenge was not a surprising result overall, although subtleties that arose regarding types of market competition provide a regional perspective important to furthering the development of the local food system in ECI. Price competition with big box stores and traditional grocery stores seems to be a challenge that is universal for small farmers nationwide. However, in our area, market competition also seems to be particularly influenced by state and local regulations regarding sales at farmers markets (as well as by the faltering state of the regional economy in general). The conflicts and competition that farmers described between “growers” and “non-growers” seem to be largely the result of inconsistent market regulations and enforcement, as well as the absence of state regulations governing sales requirements at farmers markets. While most “growers” would likely support a market structure that requires 100 percent of products sold to be grown by the seller, a number of
farmers use resale as an important way to supplement their sales and stabilize their business. It is also worth considering that “non-growers” are often selling products grown in the ECI area, helping to support other farmers and the local food economy. The conflict that arises between “growers” and “non-growers” is significant; and, in some ways, it seems to create a social barrier to the cooperation among those who are working to support a more local food system. It is vital, then, for future policy to address rules and enforcement governing the resale of produce both to reduce conflict between vendors and to provide more transparency to consumers in the purchase of local products. While we cannot say with certainty whether these types of issues in regard to market competition are specific to ECI, it is likely that these issues are more prevalent in states like Indiana that do not have statewide regulations concerning resale at farmers markets. A statewide survey of farmers market regulations and enforcement would provide further explanation for whether these issues are indeed more prevalent in ECI than other areas of Indiana. It would also be beneficial for to conduct a statewide survey in the future to determine the types of farmers market regulations preferred by farmers so that policy can be crafted according to the needs of farmers in each region.

The finding of structures and regulations as a barrier is similar to results found by other researchers (Duram 2000); in our study and in others, farmers consistently seemed to feel that many regulations at the federal and state level were not scale-appropriate to their operations. The feeling expressed by numerous farmers that they were disadvantaged by federal subsidy structures favoring conventional agriculture is also consistent, and it is a point worth addressing in more depth in the next version of the Farm Bill. If a better developed local food system is desired, more opportunities such as
small producer grants, which farmers discussed in a positive manner, should be encouraged, while policies favoring conventional production should be discouraged. Regulations should also be revised to more of a sliding-scale system to account for the scale and diversity of farms and the needs of small farm businesses.

Time and labor are often related to economies of scale (i.e., the scale of production does not justify additional hired labor), so given that our study focused on small-scale farmers, it was unsurprising to find that these factors were common barriers. Time and labor are common constraints found in others studies and are recognized by the USDA as barriers for farmers involved in local food production (Sassenrath, et al. 2010; Martinez, et al. 2010). It is worth considering that these factors are also strongly tied to the issue of markets for local products; if the local demand cannot support an increase in production, it will continue to be difficult for farmers to scale up their operations and leave their off-farm jobs or hire additional labor. Thus, it will be increasingly important to take steps to improve the market for local foods to reduce time and labor barriers and increase the efficiency of production on small farms. Several farmers mentioned time constraints in regard to marketing (e.g., not having enough time to market properly, or to expand their markets as they would like to), so it seems that the lack of time can have reinforcing negative effects. Potential solutions in this regard could include offering additional marketing education for farmers, and/or encouraging the formation of cooperative marketing systems farmers that can help to share some of the time burdens of marketing between farmers.

Some of the related issues that farmers discussed with regard to labor are also worth noting in more detail. Farmers’ challenges finding good labor and their views that
“people just aren’t interested in agriculture anymore” are worth addressing if we desire to maintain and grow the farming population. The suspected decline in skill and interest in farming is troubling. Steps should be taken to promote farming as a viable and desirable career, along with other actions to improve the markets and profitability of small-scale farming. Initiatives such as the USDA’s beginning farmer program should continue to be implemented, and hopefully will help to encourage farmers to begin operations at a younger age to alleviate some of the time challenges many farmers experience related to their age and health. We should also continue to invest in programs like 4-H that help children to develop interests and skills in agriculture.

Risks are barriers which perhaps deserve further explanation and investigation because they are related to most other aspects of decision-making in farming. Interestingly, some of the primary risks that farmers described in our study were similar to those in other studies (i.e., crop loss, changes in government regulations, etc.), even though the bulk of previous research in this regard has focused on conventional farmers (Szekely & Palinkas 2009). However, there may be differences in the capacities which farmers have to mitigate these risks given their size. For instance, farmers often found themselves trapped by their scale; they were too small to qualify for crop insurance policies, but too large to be able to absorb a significant crop loss. The fact that several farmers mentioned difficulties obtaining insurance (or even a lack of available insurance policies) indicates an additional barrier that small farmers may face in regard to risk management compared to larger commodity farms. Farmers in our study also mentioned risks that have not been commonly found in studies of conventional farmers (Skeley & Palinkas 2009). Harm to personal health was
viewed as a prominent risk in our study, perhaps because of the extremely physical nature of the work often required for small-scale farming; small farmers rely heavily on their physical health to support their livelihood. Risk of consumer illness was also described as a more prominent risk in our study than in others. Around the time interviews were conducted, a nationwide salmonella scare was linked to Indiana cantaloupes, resulting in two deaths, nearly 150 reported cases of illness, and several lawsuits. It is possible, then, that farmers had a heightened awareness of issues related to consumer illness at the time of interview. Still, the outbreak was not the first of its kind, and farmers also discussed consumer illness in relation to recent changes in regulations for safety procedures on farms. It is likely that farmers’ elevated concerns compared to other studies also reflects the focus of most previous work on conventional agriculture, where most products are not destined for direct human consumption. The concern farmers felt regarding risk of consumer illness, then, is likely related to our study’s intentional focus on directly marketed products. Still, it is interesting to note that farmers’ concerns about the risk of consumer illness often did not lie in their own handling procedures, but in the improper handling of products by customers. This problem suggests a need for increased public education regarding proper handling and storage practices of fresh foods. In the future, it will be worth examining how agricultural policy can better address the risk management needs of small producers. Still, as risk was only one small topic of this study, further, larger-scale research is needed to evaluate the extent of risk to small farms and preferred mitigation measures.

Ecological factors were some of the least formidable barriers farmers described, which is somewhat encouraging because it suggests that farmers in our study believe the
natural system has the capacity to allow for a change to more sustainable farming practices. Of course, alternatively, it could also mean that farmers do not see the ecological system as being under threat, although this is unlikely given farmers’ disillusionment with the conventional farming system and their motivations toward stewardship. The main ecological factors farmers described, soil productivity and chemical drift, are likely to continue to be a problem in future years and need to be addressed to encourage the transition to a more sustainable agriculture. Fortunately, local agencies (e.g., Purdue, SWCD, NRCS) have begun a multi-faceted initiative focusing on overall soil health largely to reduce the impacts of conventional farming. Still, more will likely need to be done to encourage farmers to follow recommended practices to preserve soil health for future generations. Chemical drift is a significant challenge for those desiring to grow organic crops and is currently being addressed by voluntary programs such as DriftWatch. Although such programs are beneficial, additional enforcement and legal implications for chemical drift may be necessary to alleviate barriers for small farmers.

*Theme 3: Farmer Learning and Education*

The finding that some farmers struggled with their identities because of their background or their farm structure may have important implications. Several farmers in our study were hesitant to call themselves farmers because they did not grow up on a farm, or conceded that they were not considered farmers (either by others or by themselves) because of the size of their operations. As evidenced by farmers’ comparisons of themselves to their conventionally farming counterparts, this viewpoint may be particularly prevalent in ECI because of the area’s long history of conventional
agriculture. In this way, farming identity may have some ties to regionality and may present additional challenges for farmers who are practicing a form of agriculture different from the dominant form in the region. These findings are important because they highlight the need to re-conceptualize our definition of agriculture in the United States to include and legitimize small-scale farming. Of course, the USDA definition of a farm includes any operation with sales of over $1000, but based on farmers’ perceptions of their identities as farmers, it seems there is still a paradigmatic divide over what constitutes a farm. Moving forward, redefining our concept of agriculture to legitimize a variety of farm structures is likely to be an important part of promoting farming as an attractive career choice and furthering the growth of our farming population.

Farmers’ descriptions of learning as a continual process based largely on knowledge gained from trial and error and past experience is consistent with previous research (Eckert & Bell 2006; Zwickle, et al. 2012). Farmers in our study could be described in terms similar to those used by other researchers - as adaptable and always experimenting. This finding is encouraging given future uncertainties in climate, which will likely require a great degree of flexibility and adaptability in upcoming years. It is also encouraging because farmers’ uses of on-farm experimentation may present opportunities to help serve some farmers’ educational needs. Since farmers often identified the absence of area specific horticultural crop information as an educational challenge, it may be a logical step for local agencies and universities to partner with farmers to document and disseminate the results of on-farm experiments in the future. Farmers’ views that area resources disproportionately favor conventional agriculture were somewhat expected given the region’s emphasis on commodity crop production and
the focus of previous research on larger scale farms. The finding that farmers often found local resources to be “overly academic” and that many preferred learning from those with first-hand experience was also expected based on the results of other studies (Franz, et al. 2010). These finding would seem to open the possibility for increased cooperation and networking among farmers in ECI to address educational and other needs.

Yet, our findings indicate that there may be some barriers to collaboration among farmers in our region. The finding that farmers were somewhat disconnected from each other (not knowing other farmers nearby doing similar things, or feeling isolated) suggests that efforts to encourage collaboration among farmers will need to begin with steps to engage ECI farmers in a more cohesive network. Still, farmers may be apprehensive to engage in collaborative groups because of the time commitment involved, so future efforts should be practical and tailored with efficiency, keeping in mind farmers’ busy schedules. Still, farmers in ECI may have reservations about engaging in a collaborative network for other reasons. In the discussion of market competition, some farmers seemed to view the market for their products as being small and were very conscious of competition from other local vendors. It is possible that such protective attitudes may inhibit some small farmers from collaborating with one another to expand the market for fear of market competition. The skepticism expressed among some farmers about the expertise of other farmers may also be significant in the consideration of forming a collaborative network. While farmers seemed to prefer learning from those with experience, they also seemed uncertain of how much they could trust the knowledge of other farmers. Moving forward, to foster collaborations, it seems that ECI farmers may need to be encouraged to form more trusting relationships with
other farmers. It is difficult to say whether the finding of apprehension to collaborate is unique to ECI without further study, although the relative absence of cooperatives and farmer networks in our area compared to some other regions may offer some indication. Future research exploring the conditions that promote cooperation among small farmers may help agricultural professionals and farmers better understand how to promote collaboration in areas where cooperative attitudes may be lacking.

**Conclusion**

This study provided an in-depth exploration of farmers’ attitudes and motivations toward farming and sustainability and explored how those factors are related to on-farm management. Overall, this study concludes that farmers’ attitudes and motivations are extremely complex, and they vary a great deal from farmer to farmer. Yet, several similarities can be found that indicate farming, at least for those in our study, is an occupation motivated by much more than just profit. Most farmers, it seems, desire to be good stewards of the land, but their definitions of sustainability also vary. The degree to which they feel they can achieve more sustainable practices is dependent on internal constraints (i.e., not believing it is possible, lack of knowledge, etc.) and outside barriers (i.e., lacking infrastructure, pest pressure, etc.).

The barriers to sustainability on small farms are numerous. In our study, prominent barriers included: markets, structures and regulations, time, labor, risks, and ecological factors. To some extent, there were also barriers to education. Farmers struggled with their identities, comparing themselves to the dominant model of agriculture and felt that there was inadequate support for their needs. Yet another barrier
to achieving a more sustainable agriculture may be farmers’ dispositions toward cooperating to share information and ideas.

Regional context plays an important role in farming decisions. Motivations and attitudes may be similar across populations, but the results of our study indicate that constraints to decision-making are likely to be regionally specific. In ECI, constraints affecting farmer decisions seem most prominently to be the location-specific market conditions, structures and regulations, and farming culture (i.e., issues associated with the dominance of conventional agriculture in ECI). Barriers to collaboration among farmers may also have a regional basis, related at least in part to local market conditions.

A striking conclusion from this study is that barriers to the sustainability of small farms are tied intrinsically to the regional history and topography, and especially the regional economy of a place. That is, history, topography, and economics can affect an area’s ability to adapt to new modes of production. In ECI, the region’s history of large-scale agriculture and relatively flat topography has encouraged the continuing domination and expansion of production agriculture and the underdevelopment of small-scale agriculture compared to other areas of the state or country. Accordingly, support and resources for small farms have also lagged behind, making it more challenging for farmers in the area to expand and improve their operations. Small-scale farmers also face heightened challenges establishing connections with each other and in terms of their identities as farmers by being the minority group in the agricultural region. At the same time, macroeconomic declines have disproportionately affected the ECI region. Low income and educational attainment and high unemployment in the area have contributed to lower consumer willingness-to-pay. Thus, farmers have experienced weaker and more
uncertain markets, further stifling the growth of small-scale farms and the local food movement in the area. All of these factors underwrite the notion expressed by many key informants and farmers that ECI is simply “slow to change.”

If we want ECI to progress toward a future including a more sustainable food system, our approach must be multi-faceted. That is, it will not be enough to simply educate consumers about the benefits of local foods. It will not be enough to create opportunities for farmers to market their products in a way that is less time and resource consuming. Encouraging attitudinal changes on the part of farmers toward establishing more cooperative relationships may help to alleviate some challenges, but will not make small-scale farming viable on its own. All of these things are necessary. We must work to remove barriers that small farmers face to lower the cost of production and allow small farms to benefit from some of the economies of scale larger farms have benefitted from for decades. Still, all of these steps must be accompanied by actively working to increase the size of the market by making locally-based agriculture a productive and resilient sector of the economy.

A critical part of growing the local food economy will be to tie consumption to the ECI area. The fact that many farmers are traveling to the Indianapolis area also means that food dollars are leaving the local economy. We need increased public education to foster a community of collaboration and support among institutions, small-scale farmers, and individual consumers. Institutions have a particularly important role to play by supporting the growth of the sustainable food movement through purchasing relationships with local farms. In this way, important regional industries become tied with agriculture, providing a more stable and growing market for local foods, while encouraging dollars to
stay in the regional economy, providing continuing support for area industries.

Agriculture should be approached as an integrative part of economic development so that a strong economy will not be necessary to support local agriculture, but rather, that local agriculture will be a vital part of a strong economy.

Limitations and recommendations for future study

Certainly the results of this study cannot account for the views of all small farmers. Because the intent of this research was to gain insight for specific use in the East Central Indiana region, results of the research are most relevant in the eight-county area in which the study was conducted. Furthermore, the solutions that work for ECI are unlikely to be the exact solutions needed in other areas of the state or country. This study was intended to be a starting point to help determine how aid and outreach can best be applied in our region by understanding the farmers who are driving our local food economy. This study highlights the importance of considering local conditions to efficiently allocate resources toward developing regionally appropriate food economy.

Still, our study does draw light on some important questions that may require further investigation, and our results may be used to inform more extensive research. Comparative research between contrasting areas, and possibly between different farm structures would further clarify the influence of regionality on farming decisions. Larger-scale, quantitative research may also be developed based on our findings to gain a clearer picture of the extent of farmer attitudes in regard to sustainability and the degree to which regional barriers are perceived. Given our findings regarding the importance of regional context in decision-making, this study recommends that future research be conducted with local context in mind.
REFERENCES


Eckert, Eileen, and Bell, Alexandra. “Continuity and Change: Themes of Mental Model Development Among Small-Scale Farmers.” *Journal of Extension* 44.1 (February 2012).


APPENDICES

APPENDIX I

Key Informant (KI) Interview Protocol
1. Every agricultural region is a bit different. What makes the place and people where you live unique?
   [Probe: people, land, institutions, environment, agriculture, traditions]

2. Is farming changing in ECI? In what ways?
   [Has this changed in the past 10-20 years? What has changed?]

3. What are the most critical soil quality concerns in the ECI?

4. Among the smallholder farmers you work with (or know), what would you say are some of the challenges they often talk about?
   [Have these challenges changed in the past 10-20 years? How?]

5. What are the barriers to starting a small farm in ECI?
   [land prices, access to land, soil quality]

6. What are the barriers to selling ones goods in ECI?

7. What is you perception concerning ECI consumer’s knowledge and attitudes about local foods?

8. What type of educational assistance is available to help smallholders learn about: (1) appropriate soil conservation practices? (2) how to connect with local markets and sellers?
   [Is there an outreach program providing education? How well does it work?]

9. Is there anything we have not discussed that you feel should be part of the conversation?

10. Based on our conversation who else should I speak with?
    [both KIs and smallholders]
APPENDIX II

Farmer Interview Protocol (p. 1)

Personal background and farm history
1. Please tell me about your farm.
   a. How long have you been farming here - how did you acquire your land?
   b. What do you produce and sell? Why did you choose those things?
   c. What makes farming unique in this area – what makes it different from other areas?
   d. How would you describe your farm compared to other farms in this region?

2. Please tell me about your farming background.
   a. How long have you been a farmer?
   b. Why did you start farming? Why are you still farming?
   c. From where did you learn farming skills?

3. Have you always farmed this way? How have you changed your operations over the years, and why? Can you give me some examples of how you’ve changed (and why)?

Resource management
4. What does it mean to you to be a “good farmer?”
   a. How do you determine whether you’ve had a good year? (Profitability, sustainable management, community, etc.?)

Markets and Structures
5. How and where do you market and sell your products? Which ways are most successful, and why?
   a. Do you have any type of agricultural or product certifications you’ve paid for?
      i. What certification(s) do you have? (i.e., National Organic Program (USDA Organic), Certified Naturally Grown, American Grassfed, GAP Certification, Biodynamics, Pasture-Raised, etc.)
      ii. Do you intend to get any certification in the future?
      iii. What benefits do you see from certification?
      iv. Has certification been worth the cost?

Barriers and opportunities
6. What are the biggest challenges to being a farmer in this area? Would that change if you farmed somewhere else?
   a. What are the biggest risks to your success? How do you (or do you plan to) mitigate those risks?
   b. How has the drought this year affected your farm and your operations?

7. What are the biggest benefits/advantages of farming in this area? How do you view opportunities for small farmers in this area? Would that change if you farmed somewhere else?
8. Are you working toward any (several) goals for your farm?

Farmer Interview Protocol (p. 2)

   a. What are your goals for the short, medium, and long-term?
   b. What makes those goals difficult to achieve?

9. What are your future plans for your farm and your land? (i.e., heirs to the farm, selling, keep in farmland)

Information

10. Have you previously used Purdue Extension Services to get information about farming? Why or why not?
    a. Have you found their services helpful? How could they be better?

11. Where else do you usually get information about farming? (Extension, friends, other farmers; trade magazines; farm shows, SWCD, NRCS, other (specific written sources)
    a. Do you find these sources helpful? How could they be better?
    b. Are you aware of any small farmers’ or other types of networks in the area for resource and information sharing? Would you be interested in this type of network? Why or why not?
       i. Do you have any interest in participating in some type of local food hub?

12. Based on our conversation, who else should I speak with?
APPENDIX III
Sociodemographic Questionnaire
1. What is your gender?
   _____ Female  _____ Male

2. When were you born?
   19______ year

3. If you have another job aside from farming your land, what is your current employment status?
   Please CHECK only one:
   A. _____ Full-time
   B. _____ Part-time
   C. _____ Retired
   D. _____ Student
   E. _____ Homemaker
   F. _____ Non-employed (looking for work or laid off)

4. What was the highest grade of school you completed?
   Please CHECK only one:
   A. _____ None
   B. _____ Grade school
   C. _____ Some high school
   D. _____ Completed high school or GED
   E. _____ Some college
   F. _____ Technical school beyond high school or Associates Degree
   G. _____ Bachelor’s Degree
   H. _____ Graduate/Professional Degree

5. What is your current marital status?
   Please CHECK only one:
   A. _____ Never married
   B. _____ Married/Living with partner
   C. _____ Divorced/Separated
   D. _____ Widowed

6. How many children do you have?
   _____ number of children

7. How do you describe yourself politically?
   Please CIRCLE only one: Liberal  Moderate Liberal  Moderate
Moderate  Conservative

8. How long have you lived in your present community?
   ______ number of years in community

9. How satisfied are you with your family’s financial situation?
   Please CIRCLE only one:
   Very Unsatisfied  Unsatisfied  Neither Unsatisfied nor Satisfied  Satisfied  Very Satisfied

10. Would you say that you and your family are better off, worse off, or about the same financially as you were a year ago?
    Please CIRCLE only one:
    Worse off  About the same  Better off

11. Looking ahead a year from now, do you think you and your family will be better off financially than you are now, worse off, or about the same as you are now?
    Please CIRCLE only one:
    Worse off  About the same  Better off

12. Which of the following are current sources of income in your household?
    Please CHECK ALL that apply:
    A. ___ Wages and/or salary
    B. ___ Income from business
    C. ___ Interest and/or investments
    D. ___ Income from rental properties
    E. ___ Supplemental security income
    F. ___ Other disability benefits
    G. ___ Social Security payments
    H. ___ Retirement pension payments
    I. ___ Unemployment
    J. ___ Food stamps
    K. ___ Public assistance/welfare
    L. ___ Other, please specify: ______________________
13. What is the total income you make from selling goods that you grow?

Please CHECK only one:
A. _____ Less than $15,000
B. _____ $15,000 to $24,999
C. _____ $25,000 to $34,999
D. _____ $35,000 to $49,999
E. _____ $50,000 to $74,999
F. _____ $75,000 to $99,999
G. _____ $100,000 to $149,999
H. _____ $150,000 or more

14. What was the total income of your household (before taxes) last year?

Please CHECK only one:
A. _____ Less than $15,000
B. _____ $15,000 to $24,999
C. _____ $25,000 to $34,999
D. _____ $35,000 to $49,999
E. _____ $50,000 to $74,999
F. _____ $75,000 to $99,999
G. _____ $100,000 to $149,999
H. _____ $150,000 or more
APPENDIX IV
Phone Script

Following is a phone script in the event the principle investigators need to contact a potential participant by phone.

Good morning/afternoon/evening Mr./Ms. __________. My name is (principle investigator) from Ball State’s Department of Natural Resources and Environmental Management. How are you today?

We are conducting a study to learn more about farmers in East Central Indiana who own and manage small acreages. We’re doing this by conducting in-person interviews and soil samplings with local farmers. We’re asking general questions about your experiences farming in East Central Indiana and some more specific questions about management practices you use on your farm. With your permission, we would like to conduct an interview with you at your farm. If you are interested, we can do the interview at a time most convenient for you.

Would you be willing to participate?

-If yes, continue to next section
-If no, ask if there is anyone they know (who fit the KI or farmer inclusion/exclusion criteria) who might be willing to participate. Ask for contact information. Thank them for their time and end the conversation politely.

If willing to participate:
Thank you very much for your willingness to participate. Since the focus of our study is on small-scale, diversified farmers in the area, I will need to ask you a few questions to verify that you will qualify to participate in the study.

Are you the operator or principle operator of your farm?
In what county is your farm located?
In what county do you reside?
How many acres is your farm in total?
Roughly what percent of your farmland is used to produce commodity crops such as corn and soybeans?

-If all answers fit inclusion/exclusion criteria, continue to next section.
-If any answer does not fit with inclusion/exclusion criteria, ask if anyone they know (who fits the KI or farmer inclusion/exclusion criteria). Ask for contact information. Thank them for their time and end the conversation politely.

It sounds like you would be a good fit for our study. Which day and time works best for you to participate in an interview?
Thank you very much. Confirm interview time and date, and give contact information. Goodbye.
APPENDIX V
Exploring Motivations, Management Practices, and On-Farm Sustainability Among Smallholder Farmers in East Central Indiana

Responsible Project Investigators at Ball State University:
Samantha Grover, B.A. Joshua Gruver, Ph.D. Brian Lepore, Ph.D.
West Quad Building West Quad Building West Quad Building
Ball State University Ball State University Ball State University
Muncie, IN 47306 Muncie, IN 47306 Muncie, IN 47306
4 Cell Phone: (612) 812-3721 Office Phone: (765) 285-5789 Office Phone:
47306 (765) 285-8845

Purpose of the Study: To understand how farmers who own small acreages in East Central Indiana manage and think about the resources on their farm.

Procedures: If you volunteer to participate in this study, you will be asked to be interviewed in-person by the researcher for roughly one hour. The interview will be audio-recorded and later transcribed into text by the researcher. Any names used on the audiotapes will be changed to pseudonyms when the tapes are transcribed. The tape can be stopped at any point during the interview if you wish. With your permission, results of this study (with no personal identifiers) will be disseminated in reports and academic publications. You will be asked questions regarding your background, your experiences with farming, and your current soil management practices. If you do not wish to be audio-recorded, you may still participate in the study. In this case, the researcher would take notes to document the interview. Following the interview, you will also be asked to complete a demographic questionnaire with information such as your age, occupation, race, and income. The researcher will also ask permission to take a soil sample from your farm, at locations you will determine together based on your land use.

Statement of Confidentiality: You may be assured of complete confidentiality. Your name will only be associated with your answers on the original tapes and notes that are only accessible by the investigators. If the information you provide is reprinted or published, no information will be used that would identify you.

Data Security: All collected data, including notes, audiotapes, and transcribed documents will be kept in a locked file cabinet in Joshua Gruver’s office located in 121 WQ at Ball State University or the investigator’s password protected computer. Recordings will be destroyed in three years (2015).

Right to Ask Questions: You can ask questions at any time about the research. Please contact Joshua Gruver at (765) 285-5789 with any inquiries or concerns. A copy of this consent document will be given to you.

IRB Contact Information: To better understand your rights as a research participant, you may contact the Office of Research Integrity at Ball State University, Muncie, IN 47306, (765) 285-5070, irb@bsu.edu.

Risks or Discomforts: The only anticipated risk from participating in this study is that you may not feel comfortable answering some of the question. You may choose not to answer any question that makes you feel uncomfortable and you may quit the study at any time.

Voluntary Participation: Your participation in this research is strictly voluntary. You can end your participation at any time or choose not to answer particular questions. You must be 18 years of age or older to consent to participate in this research study. If you consent to participate in this study and to the terms above, please sign your name below:

_____ I give my permission to be AUDIO taped.
____ I do not give my permission to be AUDIO taped.

____ I do give my permission for portions of this interview to be directly quoted in publications/presentations.

____ I do not give my permission for portions of this interview to be directly quoted in publications/presentations.

Participant Signature ___________________________ Date __________________

The following signature confirms that the informed consent procedure has been followed:

__________________________________________ Date

S. Grover
APPENDIX VI

The following questions relate to the soils we’re sampling today and how you’ve managed them. We’d like to sample two soils on your farm: 1) a soil that represents the soil you’ve put the most effort into improving, and 2) a background or reference soil that represents, as closely as possible, the state of the farm’s soils when you started farming here.

General Soil Quality Questions (Circle the most appropriate choice):

1. When assessing soil quality on your farm, please indicate which of the following soil properties you consider AND how important an indicator do you consider that property to be.

<table>
<thead>
<tr>
<th>Soil Property</th>
<th>Do you consider it?</th>
<th>Very Unimportant</th>
<th>Unimportant</th>
<th>Neither Important nor Important</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil color</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Soil texture and structure (i.e., the feel or tilth of the soil)</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Soil smell</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Soil workability</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Earthworm population</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Crop vigor and growth</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Crop yield</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Soil test results in general</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Soil test pH</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Soil organic matter percentage</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other (please name):_____________________</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other (please name):_____________________</td>
<td>Yes/No</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. How would you rate the importance of soil quality to your success as a farmer (circle best choice)?

<table>
<thead>
<tr>
<th>Importance Level</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not important at all</td>
<td>1</td>
</tr>
<tr>
<td>Less important than other factors</td>
<td>2</td>
</tr>
<tr>
<td>Not more or less important than other factors</td>
<td>3</td>
</tr>
<tr>
<td>Somewhat relative to other factors</td>
<td>4</td>
</tr>
<tr>
<td>Very Important relative to other factors</td>
<td>5</td>
</tr>
</tbody>
</table>

3. When thinking about and prioritizing medium- to long-term goals (2-10 years) for your farm, how important would you say improving soil quality is (circle best choice).

<table>
<thead>
<tr>
<th>Importance Level</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a priority</td>
<td>1</td>
</tr>
<tr>
<td>Relatively low priority</td>
<td>2</td>
</tr>
<tr>
<td>In the middle of priority list</td>
<td>3</td>
</tr>
<tr>
<td>One of the top priorities</td>
<td>4</td>
</tr>
<tr>
<td>The highest priority</td>
<td>5</td>
</tr>
</tbody>
</table>

4. Have you ever had your soil tested?

   If you answered No, skip to question 5.
   If you answered Yes,
   a. I send in ___ sample(s) per farm / acre / field (circle one)
   b. How often do you test your soils (circle one)?

   Annually
   Every other year
   Less Frequently
   I’ve only submitted sample(s) once

Please Turn Over Page

High Quality Soil Questions:

5. What is the current crop growing in this soil ________________
6. How would you rate this soil’s quality with respect to your intended use (circle one)?

| Poor          | Not so good | Medium | Good | Excellent |

7. How representative is this soil of the rest of the soils on your farm (circle one)?

| No other soils on my farm have this level of quality | A few other soils on my farm have this level of quality | About half the soils on my farm have this level of quality | Most soils on my farm have this level of quality | All soils on my farm have this level of quality |

8. Is this soil native to your farm or did you import it from off the farm (circle one)?

| Mostly native with little or no improvement by me | Mostly native with significant improvement by me | Mostly native soil improved by previous landowner(s) | Mostly imported soil material | It’s about 50/50 native soil mixed in with imported materials |

9. In the following table, please check any of the listed practices, or add other practices, you’ve engaged in to improve this soil:

<table>
<thead>
<tr>
<th>Practice</th>
<th>Frequency (every ___ years)</th>
<th>Specific type of practice (e.g., chicken or cattle manure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding manure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adding inorganic fertilizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adding compost or compost tea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organic mulching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tillage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Added earthworms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crop rotations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cover crops</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. **Background Soil:** How is the soil you consider background or reference soil currently managed/planted (e.g., corn, turf, fallow, weeds)?

The purpose of this part of the interview is to gain an understanding of how small-farmers in the region think about and interact with their soil. Is there anything else you’d like to share that might help that might help us understand this aspect of farming and resource management?

Thank you.
APPENDIX VII

Potential researcher biases

The following is a list of preconceived ideas the researcher about the research area from time living and working in ECI prior to the start of the study:

- Muncie (and surrounding counties) is a pretty politically conservative community
- There may not be a lot of community support for local farmers; instead, consumers support big-box chain stores
- Consumers/community members may perceive local, direct-marketed products as too expensive, inconvenient, or may not see the benefits of choosing locally grown products
- Consumers in this area may not have a high enough willingness to pay for sustainably grown goods
- Small farming may be viewed as inefficient or only feasible for niche markets
- Organic, local products may be viewed as elitist (for upper middle class liberals), or associated with a liberal mindset
- Farming support services may favor large, conventional farmers
  - Farmers may not have enough assistance/know how to implement many sustainable practices
  - Support agencies may not do a lot of outreach in regard to resource management on small, diverse farms
- Soil quality is likely to be the most important resource concern on the farm
- Small farmers may be more inclined to have a stewardship ethic
- There may not be a large enough market to support small farmers in this area
- Farmers may feel the cost is too high to implement many sustainable practices