

Soil Ain't Dirt: The Many Meanings of Soil
in the Lives of Iowa Farmers

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In 1943 Sir Albert Howard published his seminal text, *An Agricultural Testament*, in which he outlined the relationship between the health of soil, plants, and animals and advocated for an alternative to the industrial agricultural system that was beginning to take root (Hockridge 2012, p. 9). His marked one of the first prominent voices decrying the rapid degradation of the soil, a problem that had been recognized even seventy years ago. Inspired by Howard's text, Lady Eve Balfour, an early advocate for organic farming and author of *The Living Soil*, observed that it is "food, which concerns everyone; it is health, which concerns everyone; it is the soil, which concerns everyone- even if he does not realize it" (quoted in Hockridge 2012, p. 9). The timelessness of these statements regarding the intimate relationships between humans and the soil have continued to impact readers in the present, continuously resignifying the importance of soil maintenance. By providing food, support for ecosystems, and a source of income, among many other functions, soil supports the entire human population. While everyone relies upon soil for their survival and wellbeing, many have lost the close connections that their ancestors enjoyed with the land. Throughout American history, the average person was far more likely to farm and participate in the production of his/her own food than today when, out of 300 million Americans, only two million are farmers (USDA 2011b). These Americans who remain on the farm represent a group that retains their closeness to soil and the land far better than a typical consumer.

Although soil is a crucial resource for farmers and everybody else, Iowa's topsoils are being lost at a high rate. Erosion has become perhaps the most pressing problem with regard to soil in the state, although compaction and a loss of life in the soil also plague farmers. The extreme consequences of soil degradation have placed the future of soil at the forefront of

contemporary debates about agriculture. Investigating the importance of soil to producers may have a positive effect on our ability to confront conservation problems in the future. Farmers, those with the power to protect the soil with their practices, may also be the group with the most to lose if the soil is lost. These two factors suggest farmers are a critical player in the discussion about soil's fertility and long-term sustainability. For this reason, I have spent the past four months exploring importance of soil in the lives of Iowa's farmers. I interviewed a group of 45 farmers in central Iowa to understand their approach to soil on both a methodological and ideological level. My interest lies in the perspective of the farmers—the people who work the land and know the soil intimately. By focusing on the testimonies of farmers themselves, I hope to clearly convey the beliefs and values they hold regarding soil and explain why these beliefs are important for the future of the soil.

Exploring these beliefs lends insight into a much larger question: Will Iowa save its soils? I argue that a complex cultural system has arisen surrounding the soil; its existence will check the ultimate destruction of soil within Iowa. The system I describe is comprised of the beliefs and values of farmers with regard to the material and symbolic value of the soil. Soil is a critical resource for farmers; their rhetoric reveals a deep appreciation for a resource that supports high yields and profits for farmers. While these material factors are important in the way that farmers view soil, I also discovered that the soil takes on symbolic importance that reinforces farmers' beliefs about themselves and their occupation, providing non-economic incentives to protect the land. In turn, this particular worldview positions farmers, no matter what production methods they use, as stewards of the land. While this system clearly does not stop all harm to the soil in the present day, this study proposes that the sum of these many meanings is enough to prove soil is a uniquely important resource in the lives of Iowa farmers—far too

important to be lost by their own actions (or lack thereof). In this way, understanding farmers' views towards this critical resource provides insights about the prospects for the protection of soil in coming years.

Literature Review

It is important to situate this study within its broader social and economic context. In doing so, I will examine literature about agriculture in Iowa and the current state of its soils to provide a better perspective about the problems and themes that motivated this research.

Agriculture in Iowa

Iowa is one of the world's agricultural powerhouses. The state has one-fifth of the Grade A farmland in the United States, and in recent years 85% of Iowa's total land area, over 30 million acres, has been farmed (Iowa Association of Naturalists 1999; Iowa Agricultural Statistics 2009). The vast majority of products raised on Iowa's farms are commodities intended for sale outside of Iowa. In 2009, for instance, Iowa exported almost \$6.5 billion in agricultural products, leading all fifty states in the export of soybeans, feed grains, and live animals/meat (USDA 2011a). Even in the face of agribusiness' dominance, however, Iowa has developed a reputation for a vibrant local foods sector, one that has grown rapidly in the past fifteen years. Iowa is ranked first in the number of farmers' markets per capita in the nation; farmers' markets in the state are thought to have generated approximately \$38.4 million in sales in 2009 alone (Otto 2010). Both industrial, market-oriented, and alternative, local production contribute significantly to Iowa's economy and perceptions of its agricultural dominance.

These figures point to the economic significance of agriculture in the state, but agriculture continues to have cultural importance as well. Iowa remains predominantly rural with few large cities. In addition, family farming remains common in Iowa agriculture. The vast majority of Iowa farms— nearly 90% in 2007— are owned by sole proprietors or family

corporations (USDA 2011a); as J.L. Anderson explains, “to this day [the Corn Belt] is a region characterized by family farming, even as many of those families have incorporated in order to protect family assets from the financial disasters that plague farmers during times of low commodity prices, drought, flood, or infestation” (Anderson 2009, p. 11). This tradition is somewhat unique and heavily impacts the social landscape in the state. Family farming makes farming more than a business for those who practice it, connecting it with their home and families. Iowa is also interesting in that, although industrial farming is commonplace on the landscape, the state’s average farm size remains relatively small—only 331 acres in 2007 compared to the national average of 418 acres (USDA 2011a; USDA 2011b). Only 8.4% of all farms are above 1,000 acres and the majority, nearly 80% in fact, remain less than 500 acres, a trend that mirrors the national average closely (USDA 2011a; USDA 2011b). It is evident that the unique characteristics of Iowa agriculture are significant in the state’s cultural system, suggesting the appropriateness of using an anthropological lens in examining the subject.

The Modern Agricultural Binary: Industrial and Agrarian

Terms such as “agribusiness” and “local foods” have already appeared in this paper. These phrases are increasingly common in literature about American agriculture and serve to highlight the common assumption that there exists a binary opposition between industrial and alternative agriculture. These competing models for agriculture encompass both methodological and ideological differences among farmers. This binary provides a generally acceptable vocabulary for characterizing modern farms, but the terms “industrial” and “alternative” are vague and demand clarification before moving on.

Industrial agriculture is the dominant method used in American agriculture today. As the name suggests, this model of agriculture applies many of the principles of industrial production

to farms. The term “industrial agriculture” generally refers to a suite of practices including: the use of monocultures, dependence on synthetic inputs for soil fertility and pest management, specialization, and highly mechanized production. Industrial agriculture is market-oriented and produces crops that are not always for food. In Iowa, for instance, row crop farmers almost all produce corn and soybeans. Very little of the harvest of these two crops goes directly into food for humans, being used instead for industrial purposes or animal feed. Scale is also an important factor in the definition of an industrial farm. These operations seize the opportunity to create economies of scale, consolidating American agriculture into large farms that run on machine power, benefitting from the efficiency such machines allow. Farmers today can work far more land with far less labor than ever before thanks to a wide array of new technologies including herbicides, pesticides, combines, hay balers, and automated milking parlors, to name a few (Anderson 2009). Taking advantage of these new opportunities, many farmers pursued automation and standardization with gusto, increasing their profits as they did so (Tauger 2011; Anderson 2009).

For some, this model of industrial agriculture runs counter to their understanding of how farming ought to be. Edward Hyams, writing sixty years ago, was already voicing the type of dissent that we commonly hear today: “The pernicious vice of calculations of success in terms of money return per man-hour-energy-acre instead of food-value is still with us; and the lamentable social consequences are still being ignored” (quoted in Clutterbuck 2012, p. 3). While some individuals never subscribed to such a model, it has enjoyed growing popularity in the post-war period. However, the concept of industrial agriculture is increasingly under fire in the United States. *Fatal Harvest: The Tragedy of Industrial Agriculture*, published in 2002, is a collection of essays edited by Andrew Kimbrell that is dedicated to indicting the system of industrial

agriculture, arguing that industrial food is less nutritious than locally-produced varieties, engenders high social and environmental costs, and poses threats to the health of farmers and greater human populations. This type of volume is increasingly common, suggesting the arrival of a popular movement against industrial agriculture.

Many of these critics advocate an alternative model of agriculture. This model, in many ways a reaction to the use of industrial methods, is perhaps more difficult to define as it includes an entire collection of movements dedicated to returning to—or, in some cases, retaining—a simpler and less industrial approach to agriculture. Alternative agriculture encompasses the popular organic and local food movements, as well as groups such as Amish farmers who never abandoned their pre-industrial methods. Many of these producers embrace an agrarian interpretation of agriculture, which places the health of the land and the soil at the center of their concerns. Agrarianism, the belief that “people everywhere are part of the land community, just as dependent as other life on the land’s fertility and just as shaped by its mysteries and possibilities,” suggests the difference in the alternative approach (Freyfogle 2001, p. xiii). This agrarian attitude, so prevalent in America’s earlier agricultural communities, is returning with new strength in the present. Alternative food producers seek to walk more softly on the land than their industrial counterparts and place environmental health near the top of their priorities.

In many ways, these two styles of farming are dichotomously opposed. However, this binary obscures the full range of possibilities that exist on modern farms. Although some farmers practice an industrial model of agriculture and others exemplify an agrarian one, the vast majority of farms fall somewhere in between. The dichotomy, while useful in discussing methods and categorizing farms, is detrimental in attempting to solve the problems confronting modern agriculture: "Too many times, there's a false battle between local and organic food and

large-scale conventional agriculture. That's unfortunate...I think we need them both, and we need them to collaborate. We need intelligent hybrids" (Morrison 2011). Jon Foley, the director of the Institute on the Environment at the University of Minnesota- Twin Cities, believes that "the principles and practices of our different agricultural systems—from large-scale commercial to local and organic"— are important in finding solutions to the world's agricultural quandaries (Foley 2011). Staunchly defending the distinct binary between industrial and alternative methods interferes with the creative problem solving that allows humans to move forward. Even with these hesitations in mind, I have chosen in this study to use the terms industrial and alternative to describe the general methodologies and worldviews of farmers. The terms are convenient and it is my experience that the farmers themselves oftentimes describe the world in terms of this binary in their daily language, suggesting the appropriateness of its use.

Soil in Danger

Whether a farmer uses alternative or industrial methods, soil is an important part of the farm operation. In light of this, it would seem logical that soil would be one of the most protected resources in the world. In reality, however, soil degradation has been a hallmark of most kinds of agriculture for centuries and continues to be threatened today. Failures in fertility are well documented throughout time:

While some societies developed agricultural practices that conserved or even improved their soils, time and again soil degradation pre-disposed whole civilizations to failure. The trigger for any particular societal collapse may have been a drought, natural disaster, or social conflict, but the resilience of societies in general lay in the state of the land – in the health of their soil. In small, isolated island societies and extensive empires soil erosion and degradation limited the longevity of civilizations that failed to safeguard the foundation of their health and prosperity, fertile soil (Montgomery 2012, p. 4).

Montgomery here references both Babylon and Easter Island, whose lack of soil fertility and stewardship contributed to their demise. Pimentel and Kounang (1998) indicate that humans may

have exhausted nearly 2 billion hectares of arable land since the rise of agricultural societies, a figure nearly equal to the 1.5 billion hectares of land that humans currently cultivate (p. 418). These cautionary tales foreshadow the potentially disastrous consequences of insufficient soil, but even this knowledge has failed to stop soil, which remains “one of this century’s most insidious and under-acknowledged challenges” (Montgomery 2012, p. 4).

Of the many forces adversely affecting the health of the soil, one of the most visible and alarming problems facing the world’s farmers is soil erosion. Pimentel and Kounang (1998) indicate that 75 billion tons of soils are eroded annually worldwide (p. 416). This level of erosion is hazardous because it is 13-40 times faster than the estimated “rate of renewal and sustainability” for soil creation (Pimentel and Kounang 1998, p. 416; Kimbrell 2002, p. 16; Montgomery 2012, p. 4). Erosion is brought on by natural causes such as steep slopes and poor tith, as well as human influences such as deforestation. Each of these causes pales in comparison with the impact of agricultural erosion, which is “estimated to be 75 times greater than that occurring in natural forest areas” and accounts for three-quarters of the world’s annual soil erosion (Pimentel and Kounang 1998, p. 418). The authors explain that the vast majority (80%) of the world’s agricultural land “suffers moderate to severe erosion” (Pimentel and Kounang 1998, p. 418).

The end result of erosion is the loss of productive land. In 1994, the World Resources Institute estimated that “as a result of erosion, during the last 40 years, about 30% of the world’s arable land has become unproductive and, therefore, has been abandoned for agricultural use” (World Resources Institute cited in Pimentel and Kounang 1998, p. 418). Montgomery (2012) suggests that humanity is losing “about a half percent of farmland a year, a rate too slow to notice, but alarming nonetheless when one ponders how to feed a growing population” (p.4).

Given that the tools for degrading the planet have multiplied rapidly in the past century, this loss of arable land should be considered a serious problem. The erosion of topsoil from human activity threatens the health and productivity of agricultural land and with it the health of human societies: “The abandoned land, once biologically and economically productive, now produces little biomass and has lost most of its initial biodiversity of plants and animals” (Pimentel and Kounang 1998, p. 418). Erosion can cause persistently low yields, creating economic hardship for farm families and ultimately threatening the world’s food security. Further, “soil, unlike the fiction of money, is a reality that cannot be conjured up as and when we want, in the way that we can create credit or print more money. Soils are a key part of our life support system, which we do not own but of which we need to exercise stewardship” (Tansey 2012, p. 14). Given soil’s relative importance and the rapid rate of its degradation, action must be taken to counter these trends.

Iowa has not been exempt from this problem of erosion. A full half of Iowa’s topsoil has been lost to erosion since 1848 (Iowa Association of Naturalists 1999). The Environmental Working Group (2012) estimates that 10 million of Iowa’s acres, nearly one-third of all Iowa farmland, lost “dangerous amounts of soil” to erosion in 2007. The average acre of land in Iowa lost 5.2 tons of soil in that year, slightly above the government’s estimate for sustainable loss of 5 tons per acre, although this erosion is not proportionately spread across the state (Neuman 2011). These new data are based upon a study conducted at Iowa State University that suggests that “erosion in some parts of the state is occurring at levels far above government estimates” as a result of the “high-intensity, high-volume rainstorms” that have become more common in the past fifteen years (Neuman 2011).

It is important to note that while erosion is one of the most pressing problems associated with soil health, it is by no means the only one. Many other, less visible, problems also haunt agriculture in the United States. Soil compaction is one such problem. Compaction can result from natural and human causes. Historically the movements of large animal herds caused compaction in compressible soils, while the repeated use of heavy machinery does so today (Batey 2009). Compaction can inhibit root development and plant growth through “reduction in permeability to air, water, and roots” (Batey 2009, p. 335).

Many farmers express a sense of nostalgia about the time before pollution and the many challenges that face agriculture today. One of the participants in my study, a lifelong Iowa farmer, expressed this dismay about the environmental impact of agriculture:

I remember when I was a kid and we'd be out on the bottom. On the farm where we lived, we had a flat spot where the house was at and then you had a valley below that and then you had a big hill and then down the other side of that hill was a bottom with a crick in it. So we tiled on the flat side of this hill and we had a cup hanging right where the tile ran into the crick. You'd get thirsty when you was working back there, so you'd get a cup full of water and drink the water. Now there's no way I'd drink the water!

Many of the most extreme changes in agriculture have occurred during the lives of people who still work as farmers. The drastic shift in methodologies is not lost on those who work with the land. Agriculture necessitates a certain level of impact on the natural environment, but the rate of degradation in modern times threatens the stability of soil health.

Methodology

My study of the meaning of soil to farmers in Iowa study relied upon existing ethnographic data, personal interviews, and library research to investigate the many meanings of soil to area producers. In approaching this question, I was interested foremost in hearing the perspective of the farmer. Their words, I believe, are able to reveal the many connections (practical, symbolic, and otherwise) that farmers have with their land. This approach follows that

of J.L. Anderson, who wrote his monograph *Industrializing the Corn Belt* “from the perspective of the people who raised the crops and livestock...the farmer ‘with the dirt on his hands and dung on his boots’” (Anderson 2009, p. 9), a perspective anthropologists refer to as “emic.” My intent is to present the perspective of those who work the land and explore the ways in which soil acquires meaning in their lives. The geographer Yi-Fu Tuan seconds the importance of presenting the farmers’ perspective. Tuan suggests that there are two ways to examine landscapes. Most geographers, he says, take “the vertical view” of landscapes— an “objective and calculating” perspective (Tuan 1979, p. 90). While there is value in this point of view, I am more interested in what Tuan calls a “side view” of the landscape, a “personal, moral, and aesthetic” perspective that explores the people “*in the landscape, working in the field*” (Tuan 1979, p. 90).

This research built upon existing ethnographic data that I collected with my mentor Jonathan Andelson as part of a Grinnell College Mentored Advanced Project in the summer of 2011. That project, “Diversity and the Farmers’ Markets of Central Iowa,” explored the practices and beliefs of producers who sell their goods through farmers’ markets in Grinnell, Marshalltown, Iowa City, and Des Moines. Based on the methods of Holeva (2009), Otto (2010), and Hinrichs (2001a; 2001b), Professor Andelson and I administered an in-person survey to producers at these markets when possible. If an in-person interview was not feasible, we provided a paper questionnaire for producers to return at their convenience. The data were collected over the course of 8 weeks and included approximately 40 producers. Many of these interviews included comments about soil, farm landscapes, family heritage, and farmers’

affective and cognitive connections to the land. As a result, this farmers' market study provided both the inspiration and the necessary data to begin my study of soil.¹

Additionally, I conducted nine new or follow-up interviews in March of 2012 to add greater diversity to my sample and acquire deeper insights regarding producers' identities, beliefs, and attachments to the land. Before conducting any interviews, I secured the approval of the Institutional Review Board at Grinnell College to conduct the research using my given methods. This approval required me to secure a signed informed consent form for each participant before the interview took place. Many of the interviews were recorded with the permission of the participant and will be transferred to the Grinnell College archives at the conclusion of the project. With the exception of two telephone interviews, all interviews were conducted in-person, either at the participant's home or at Saint's Rest Coffee Shop and Art Gallery in downtown Grinnell. The typical interview lasted about an hour, although some were significantly longer than others. I arranged these interviews using my existing networks of contacts in the community. The interviews focused primarily on the producers' methods and their ideologies regarding soil, the environment, and agriculture. The majority of the questions asked during these new interviews referred explicitly to soil and its health.² After each interview, I transcribed relevant sections of the interviews using Microsoft Word and coded the responses for major themes.

Interview responses formed the heart of my analysis, but were augmented with significant library research drawing on anthropological, geographical, and agricultural readings. This research helped me to triangulate my two sets of ethnographic data with academic

¹ For more information about the methods used in the original data collection see Gardner 2011.

² Please see Appendix A for the list of questions used in these interviews.

scholarship, providing more accurate results and helping to ground it within appropriate literature.

Study sample

This thesis relied upon two sample populations for analysis. The farmers' market research from the summer of 2011 encompassed 40 producers divided nearly evenly among the genders. The majority of these producers ran small-scale operations and utilized alternative agricultural methods. The sample from the spring of 2012 included eleven total participants—three women and eight men. Of these eleven, four had been included in the original farmers' market research while the remaining seven were new interviewees. There were three industrial-type farmers, one agronomist, and seven alternative producers in this sample. The results of this study, as with every study, have been heavily influenced by the nature of this sample. I feel the need to address several of these characteristics now as a disclaimer about some of the inherent limitations of these results.

Importantly, neither sample was random. Although many researchers highly prize the statistical neatness of a random sample, such a method is functionally impossible with this type of ethnographic research. Over the summer I used a convenience sampling method, asking vendors who were not busy to speak with me when possible. This meant that the busiest vendors were, by definition, excluded from my sample. The follow-up and new interviews were based upon existing social relationships and were similarly influenced by who was available for an interview during the month of March. While we attempted to include a diversity of perspectives in this research, it would be unfair to suggest that the sample is representative of all area farmers.

There also remains the delicate question of the level of financial stability exhibited by farmers in my sample. The economic standing of a farmer assuredly impacts their methods and,

in all likelihood, their beliefs about agriculture. It is impossible to accurately gauge the economic position of farmers in this study based on an interview alone. The best I can do is to offer my best guess that, at the very least, the farmers I interviewed are stable. No one expressed fears of their farm imminently folding, and many of them had been farming for many years, suggesting that they have achieved some level of financial sustainability. At the very least, all of the farmers in my sample can be considered well established in the community. Very few of them were first-generation farmers and many owned a substantial portion of the land that they farm. These characteristics suggest that this sample is not necessarily representative of all farmers, many of whom are in financially uncertain times and may not own much of their farmland. The people I talked with are family farmers who have made their home in the local community. None of them are absentee landlords and all of them maintain an active role in the day-to-day workings of their farms. These facts present one of the greatest disclaimers related to this study: the results provide insights about this type of farmer—the kind that enjoys their work, is committed to their land, and wants to see their farm flourish long after they are gone. I believe that these descriptors apply to most farmers, but also acknowledge that people and corporations who do not fit this profile cultivate plenty of farmland in the United States.

The Material Value of Soil

At the heart of nearly all agriculture lies the soil. Although some producers do not rely on soil as a medium of growth—preferring to use hydroponics or nutritional mixtures instead—this group represents a nearly invisible minority.³ The typical farmer in Iowa, and indeed in most other parts of the world, depends upon soil for their production. Understanding soil and the

³ See Mariposa Farms (2008) for an example of such a system applied to herb production in Grinnell, Iowa.

irreplaceable role it plays in agriculture is the first step to understanding the many meanings of soil and the possibility of its sustainability.

The dictionary provides a deceptively simple definition of soil: “the upper layer of earth that may be dug or plowed and in which plants grow” (Merriam-Webster 2011). This straightforward interpretation of soil overlooks much of what is important about soil to the people who depend upon it. As one farmer told me, “soil ain’t dirt”; there are characteristics that can make soil better or worse for agriculture. The Soil Science Society of America, by defining soil *quality*, provides a more useful framework than a typical dictionary definition for understanding soil’s importance: “the capacity of a specific kind of soil to function, within natural or managed ecosystem boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation” (Soil Quality 2011). Farmers today generally define soil quality in accordance with its instrumental value—its ability to produce crops and animal fodder.

The Natural Resources Conservation Service (2009) indicates that healthy agricultural soil has: intact structure, high organic matter content, minimal erosion, thriving microorganism communities, and limited compaction. To that list Broadley (2012) adds “the soil’s ability to supply crops with adequate mineral nutrients for growth” (p. 15). These features play important roles for farmers and their harvests. For example, good tilth allows water infiltration, reduces runoff, and provides space for root development, among other functions; erosion facilitates the loss of organic matter and inhibits soil productivity; and compaction limits water infiltration, root development, and the passage of air to the soil (NRCS 2009).

Farmers spend hours working to maintain fertility each year. If they did not, they would soon go out of business because successful harvests depend on many facets of soil health:

Crop production depends upon soil characteristics such as nutrient content, aeration, and pest infestations, as well as physical features such as soil's ability to support rootstocks and drain water. Soil consists of layers that possess each trait in different degrees. Most important are topsoils that possess the most ideal mixture of soil traits instrumental for crop production (Thompson 1995, p. 74-75).

Farmers in my sample similarly recognized the importance of soil quality in relation to yields. As one producer said, "the better the fertility, the easier it is to just do everything right. You can be just a haphazard farmer and have an old planter from purgatory and Mother Nature will cure a lot of that." Farmers are well aware of this importance; it was not uncommon for a farmer to say, "I can't really think of anything that's higher priority" than soil health. As a result of its importance for crop production, farmers invest time, energy, and money in its maintenance.

Farmers recognize that maintaining soil fertility is key not only to their yields, but also to their livelihoods. This was top of mind for nearly all of the farmers in my sample, with the exception of three retired farmers, but even they had more or less relied on farm income for certain times in their life. Supporting soil health is very much in most farmers' long-term financial interest. A conventional, industrial farmer reflecting on why he invests in his soil adds this important economic dimension to the discussion:

Like I say, that's kinda your bank and you erode that and it, I guess from an economic or a financial standpoint, its almost like you're annuitizing your farm if you're just going out there and you're extracting every possible thing that you can from it and then when I'm gone I had not only taken the profits from it, I've taken the farm as well. And I guess my intent is that I don't do that.

This farmer highlights what Paul Thompson (1995) calls "the marriage of stewardship and self-interest" (p. 74)—the idea that farmers benefit from keeping their soil healthy. Maintaining soil fertility over the long term makes good financial sense for a farmer planning to earn his livelihood from the same patch of ground year after year. While there are many renters or farmers on the brink of collapse for whom this long-term calculation probably is less relevant, it

generally makes economic sense as a farmer to protect your soil as an asset. Soil, then, is a critical resource for farmers as a result of its support for crop production and farmers' livelihoods. Farmers recognize the material importance of soil in their operations, suggesting that it is against their interests to allow soil degradation in the long term.

The Symbolic Value of Soil

While I have thus far emphasized the practical and material roles that soil plays in the lives of farmers, these factors tell only part of the story. Some of the farmers' comments about the material value of soil have already begun to reveal how farmers discuss the soil in a metaphoric and symbolic sense—for instance by referring to the soil as their “bank.” This type of rhetoric was common; all of the farmers I interviewed discussed soil in a non-material sense at times during our conversation. In particular, farmers used soil as a symbol for the importance of their role in society, the sacredness of the resource, and even their own identities. These meanings were expressed through symbolic descriptions: soil as a foundation, as a sacred symbol, and as a representation of their farms and identities as farmers. These symbolic associations suggest that farmers are motivated to protect the soil based on more than monetary calculations.

Soil as a Foundation for Life and Society

Throughout their interviews, several farmers referred to soil as a type of foundation for human life and society. With these comments, farmers communicated their beliefs about agriculture's role in society, an affirmation of the significance agriculture plays in a world where it is so often taken for granted. By describing soil as a foundation, farmers elevate farming to a place of great importance, positioning farmers and their work as the backbone of human society.

It is perhaps intuitively obvious that farmers would see soil as central to agriculture. Soil is a pivotal resource for those working the land. As one farmer commented, soil is the perfect medium for her operation: “So yeah, everything starts there. I can germinate seeds without soil, but once they’re germinated they need some growth medium....and they are developed over eons to grow in soil because they get everything there.” The same farmer expressed her belief that the soil is truly fundamental to human life: “Without it, we wouldn’t be here.” Paul Thompson (1995) agrees that soil is at the heart of agriculture, and, in turn, humanity’s ability to survive:

Farming’s essence is true to soil. Proper farming might be said to make concrete what is latent in humanity’s dependence upon the earth, for the act of good farming both releases and replenishes the provisions for human sustenance. Farming is the activity that locates the human species most surely in the planetary ecosystem of the earth (p. 3).

The human population depends upon the soil. It is “the key to life on this planet—the foundation for all terrestrial ecosystems” (Montgomery 2012, p.6). This in itself is not altogether surprising, although much of American society tends to be far removed from this realization. By invoking the idea of soil as a foundation for human existence, farmers may be reaffirming the value of their occupation in their own eyes when it has been lost by so much of the world around them.

Farmers further expressed their belief that this dependence on agriculture extends beyond food and into other aspects of society. Healthy soil is where human society started. Once humans found ways to farm the land, they were able to pursue specialization, form cities, and build whole economies. Human society, then, may be said to spring from the soil itself. Liisa Malkki, discussing how humans conceive of their rootedness in place, explains that “arborescent” metaphors are common (1992, p. 27). This observation is made more relevant by the fact that one of the nine farmers I interviewed this spring explicitly utilized such a metaphor in describing the value of soil:

...Agriculture is the basis of life. All things come from the soil. Think of our life as a tree. Without good roots, you get no stem. Without good roots and a stem, you get no branches. Without good roots, stem, and branches, you get no leaves. All of those come from the soil. You have to start with soil.

This farmer sees all of human society being built on healthy soil. Another farmer expressed a similar belief when I asked him to define soil: “Soil? The lifeblood of America.” He went on to discuss the central role agriculture plays in supporting the American economy. The foundational importance of soil is an argument in support of the vital part agriculture plays in society. Farmers take on high levels of risk and exist in what Michael Mayerfeld Bell calls “a perpetual farm crisis” to support American needs (2004; p. 43). By claiming soil—one of their key resources—as the foundation of society, farmers are making an argument for their significance within the social order. This is a potent affirmation that undoubtedly provides some level of comfort to producers when the future seems uncertain.

Soil as Sacred Symbol

The symbolic value of soil is further apparent in the religious expressions of farmers. The farmers in this study referenced two important religious concepts that help to establish soil as a sacred symbol—the philosophy of “ashes to ashes and dust to dust” and the idea that farmers’ land is a responsibility given to them by a higher power. Applying Clifford Geertz’s theory of sacred symbols demonstrates how soil can meaningfully represent the interface between farmers’ values and their daily actions regarding soil.

Three of the nine farmers I interviewed this spring made explicit references to the idea that “from dust you came and to dust you will return.” I interviewed one farmer on Ash Wednesday; she still bore the mark from her noon service and brought up the ritual she had gone through at church: “In the process, they take and burn the old palms and they take the ashes and they bless your forehead, so the idea is to remind you that from dust you came from and dust you

will return.” She knew I was studying soil and told me that it seemed relevant to her. Similarly, when asking if religious practices impact his operation, one farmer replied: “My aunt and I joke that we have a ‘compost religion.’ It’s like the dust to dust thing” While the farmer is, to some extent, using the term religion lightly, the sacred nature of soil to him and his family is apparent in his choice of words. Here the farmer also referenced compost—an important part of his soil management plan— suggesting the inherent relationship he perceives between the “dust to dust” philosophy and his soil. The comments of these farmers are made further relevant by their connection to a common tenant of agrarian philosophy, the idea that “soil is the great terrestrial connector of life, death, and new life, the very medium of resurrection” that facilitates the “wheel of life” (Freyfogle 2001, p. xx). All three farmers who discussed the “dust to dust” idea could be classified as alternative, or more agrarian-style, producers.

Another common refrain with regard to religion and soil was religious stewardship; farmers described their belief that they are responsible for caring for a gift (the land) given to them by a higher power. The farmers who discussed this idea oftentimes equated it directly with Christianity: “And so I guess from our Christian beliefs, it’s more like I’ve been placed here...to take care of what is there. Of whatever I’ve been entrusted with.” This conviction was common amongst both alternative and industrial farmers, although this particular sample of farmers is too small to accurately analyze the relationship between methodology and religious significance. Another farmer told me, “God gives you the chance to take care of [the land] while you’re here. That’s very simply put, but that’s true. It’s really not yours, you’re just there to use it.” This idea of “borrowing” the land from a higher power has ethical implications for the treatment of soil because it relates farmers’ land management practices to their religious beliefs. These uses of soil in religious frameworks establish soil as a symbol of the sacred in farmers’ lives.

This relationship between action and belief begins to hint at the ultimate importance of soil as a sacred symbol—its power to reconcile farmers’ morals and their daily actions. This use of soil as a “sacred” symbol may help to, as Clifford Geertz describes, unify the reality of farmers’ lives with their ideological values. For Geertz, sacred symbols function to “sum up, for those for whom they are resonant, what is known about the way the world is, the quality of emotional life it supports, and the way one ought to behave while in it” (1973, p. 126). In this way “religion grounds the most specific requirements of human action in the most general contexts of human existence” (Geertz 1973, p. 126). Symbols are a way to relate the moral maxims that humans strive to achieve with the reality of their daily existence. The moral power of the image of soil stems “from [its] presumed ability to identify fact with value at the most fundamental level, to give to what is otherwise merely actual, a comprehensive normative import” (Geertz 1973, p. 127). The soil unifies the values that all farmers espouse with the ways that they live their lives and directly connect their work with higher values. For farmers, who are constantly faced with evolving technologies, changing government regulations, and shifting tides of consumer demands, the task of maintaining soil fertility may function to unite farmers’ ideals of land ethics with the decisions they make daily, providing a sense of stability and purpose.

Soil, Place, and Identity

Farmers also espoused soil as a symbol of their particular identities as farmers. Farmers’ identities as “farmers” are created in relation to their particular plots of land. Through its symbolism of this relationship, soil has become a reminder of farmers’ selves and their rootedness in place, acting as an important means of expression and self-identification.

To better understand the complex relationship between place and identity, it is necessary to settle upon a working definition of the term *place*. While terms such as space and place are

readily used interchangeably in daily speech, social scientists have very specific definitions of each. *Space* is considered “the abstract, geometrical, undifferentiated” dimension of physical reality (Ryden 1993, p. 37). *Place*, on the other hand, is what arises when human lives become imprinted in space:

Sooner or later, we pull our eyes away from the horizon and turn them to the dirt under our feet and the neighborhood which surrounds us; we look at the dot on the map and find ourselves wondering what the place looks like and what kind of people live there. Space contains place, but it also misrepresents place; space is an object of thought, whereas place, according to Tuan is ‘a center of meaning constructed by experience.’ (Ryden 1993, p. 37)

Place is the personal and deeply human component of the world we inhabit. In this essay, the concept of place, rather than of space, is of importance.

This concept of place becomes valuable when exploring the creation of farmers’ identities as growers. The relationship between place and identity has multiple bases, although one of the most important is memory:

So here is an initial reason for supposing that our sense of ourselves is place-relative. In brief, to tell my story, I have to recall various episodes from my past; and this recollection of my past doings and experiences will be, in the normal case, place-relative: it will involve envisaging various activities and experiences in their spatial context, for only so can I bring out the sense of those activities. And this suggests that certain places, for example, the places where I grew up or had certain formative experiences, will be important for my sense of self because specifying the content of my self-narrative will depend essentially upon reference to those places. (Wynn 2007, p. 164)

Here Wynn argues that the necessity of recalling episodes of our pasts is a crucial component of our identities. Through the process of recall and identity creation places become meaningful to humans; “they are ‘the present expressions of past experiences and events’” (Tuan quoted in Ryden 1993, p. 39). This idea that places can espouse emotions and “quickly [bring] to mind earlier stages in one’s life, episodes in the history of a community, formative and notable events and experiences” is an important one (Ryden 1993, p. 39). In the process of remembering, we

automatically recall the place, as well as the events, that were part of our formative experiences, inextricably relating our identity to the place it was created. The critical moments in our self-narrative occur in particular locations that retain meaning as a result of our personal experiences. In this way, every person's identity is tied to place.

In the case of farmers, their identity as a "farmer" is built in association with their farm. Farmers' identities are built over time, having been acted out day after day, year after year, on the same plots of land. The experiences that encourage the label of "farmer" are enacted on that landscape. In this way, farms themselves become important reminders of farmers' identities. So much of what a farmer does is related to their land that they develop a finely tuned understanding of it. As one man told me, "I know every foot. I can tell you where a rock's at." This particular farmer worked several thousand acres; to know "every foot" emphasizes the scale of his knowledge about his farm. For this farmer, and others like him, continuing to work the land involves a constant process of remembering and learning—of invoking past events and building experiences that contribute to the formation of a "farmer" identity that is connected to their land.

Soil is an important arbiter in this relationship between identity and place for farmers. As Edward Soja (1989) argues, "Through struggle, meaning is built into inanimate objects that give place symbolic significance." (quoted in Harner 2001, p. 661). Soil is in many ways the perfect symbol of the struggle farmers experience in their occupation. It is wet soil that can delay spring planting, eroding soil that can endanger yields, and compacted soil that can create weed problems while stunting plant growth. By embodying the struggles of farmers and serving as a reminder of their formative experiences, soil becomes a symbol of their land, which in turn is a key to their identity as "farmers".

Soil is also an important symbol for the process of memory recall and identity formation.

One producer, a man who farmed more than 800 acres, explained why he continues to farm rather than becoming a manager:

And that's probably one reason why I haven't particularly opted to become a large farmer where you would spend most of your time in management. At least probably an indirect reason is I just plain love being out there myself. Now you don't smell the newly turned earth in the tractor cab like you did in the olden days, but- I don't know whether you can even relate to that statement- but fresh cut alfalfa... if you follow me at all.

Here the farmer harkens back to a specific set of sensory memories to describe his love of farming. His speech suggested that he was struggling to find words to express his emotions with regard to farming. In trying to convey this tricky concept, he chooses to use a description of the smell of "newly turned earth" to convey his desire to continue as "farmer" rather than "manager." Using soil in this way is indicative of its ability to communicate emotions about the development of his identity as a career farmer. Soil is a potent reminder of the memories that underlie such an identification.

Iowa's tradition of family farming further enriches the symbolism of soil with regard to identity and place. Soil here comes to represent heritage and family identity. All but a few of the 45 farmers I spoke with over the last year were *not* first generation farmers and nearly as many still farmed family land. Family farmers, with their long history on specific parcels of land, may come to view that land as a representation of their family legacy. Some of the farmers I interviewed were quite literally following in the footsteps of their ancestors. As one farmer discussed his land he said, "I grew up there. Some of the land's been in the family for over a hundred years, I guess a hundred and ten years now." In these cases, an individual's associations with a place may extend even their own lifetime. A family farm is a site that contains both history and personal experience, connecting place with a farmers' family identity. A producer, one who works at a very small scale, told me that her love of the land and soil started when she

was young: “I grew up helping mom in the garden. I actually feel withdrawal symptoms when I have to go without playing in the dirt.” The soil here is associated with childhood, with her mother, with nurturing. Even as a woman in her mid-sixties, connecting with the soil physically in her garden immediately brings back memories of her childhood and the many formative events within it. She goes so far as to use the word “withdrawal” in association with not having soil in her life. In this way, she invokes a potency of connection that is very meaningful to her personally. It is also interesting to note that these comments were made when I asked this particular farmer why she stills farms. She described her love of “playing in the dirt” as a means of expressing her motivation to farm.

These multiple symbolic associations of soil have the effect of elevating farming within the minds of farmers themselves. The connection places responsibility for one of the world’s most important resources on farmers and lends strength to farmers in a profession that exists “in the context of uncertainty” (Bell 2004, p. 33). As a result of this significance, there exists a motive beyond the practical to preserve the soil. This entire system of symbolism is important for that very reason, especially because I believe it plays a critical role in spurring farmers to action.

Farmers as Stewards of the Soil

The action of which I speak is stewardship. While it is close to impossible to generalize about farmers, one thing they nearly all share is respect for the soil. Some of this respect stems from the critical role it plays in agriculture. It is clear, however, that some of this reverence also results from the symbolic and emotive associations farmers hold with soil. The farmers I interviewed believe that the soil is alive and that it is much more complex than humans can understand. This understanding of soil reveals a deep appreciation for this resource and, ultimately, a worldview that positions farmers as stewards of the soil. The function of steward is

one that elevates farmers culturally and, I believe, ultimately drives farmers to fulfill the role of steward.

In recent years, the literature regarding definitions of soil has decidedly argued that “the depersonalized, lifeless concept of soil still predominates” in American society (Thompson 1995, p. 18). One farmer I spoke with, for instance, believes that the concept of soil as lifeless prevails, particularly with the general public:

I think for so many people today, and I don't mean this in any critical way, but it's that, you know we essentially turned food into a commodity and so we've lost all of the connections, all of the relationships to food, including soil. So we don't think of soil as having anything to do with food and so soil is just sort of dirt.

These statements propose that the world does not appreciate the life that exists in soil. While I agree that a typical American may perceive soil as simply dirt, my data suggest that farmers see soil as more than a medium for growth.

All but one of the farmers with whom I conducted follow-up interviews referred to soil as alive. Oftentimes, the proclamations about this question were simple: “Soil's alive! Soil is alive. I am thinking of that whole macrobiotic environment that we walk on everyday and give no thought to at all.” This farmer has no doubt about the reality of the biotic communities that make their homes in the soil; she emphasized her firm adherence to this belief by repeating her sentiment several times with enthusiasm. Other times, the statements were less emphatic, but still suggested that farmers viewed soil are more than merely a collection of particles:

Soil ain't dirt! Dirt's what's on the rug here. Soil is, well, yeah, living. I don't know whether soil *as such* is living, but it's a whole maze of bacteria and micro-earthworms. It's just a whole living organism down in there.

While this farmer was hesitant to refer to soil in itself as living, he acknowledges the vast array of life that exists within it. Farmers spanning different production methods, scales, and philosophies uniformly responded with these types of insights about the existence life in the soil.

This appreciation for soil's vitality is also apparent in expressions of awe and humility from the farmers. Paul Thompson claims that modern alternative producers who have turned away from the concept of soil as a sterile medium for growth have instead "invented an alternative metaphysic of soil that, while not returning to the totally personalized notion of spirit derived from myth, presents the spirit of the soil as a neglected life force to be called forth by ritual incantation" (Thompson 1995, p. 18-19). While Thompson intentionally dramatizes the ways in which producers perceive of the potential of the soil, my interviews illustrate that, as Thompson suggests, soil can take on this type of almost mystical quality for some producers. These sentiments demonstrate that for many farmers think of soil as more than instrumental in production. One farmer expressed her amazement at soil's complexity:

I started as a philosophy major, okay? And the reason I liked it back in high school, it was the hardest stuff I'd ever tried to wrap my brain around and I loved the fact that I could feel the limits of my brain and that's kind of the closest thing, is the soil. It is so incomprehensible in its interconnectivity.

Another farmer, after describing his complex management system for soil fertility remarked: "It's kind of amazing that with as intricate as [soil] is, it all works." These farmers share a worldview that celebrates the complexity of soil. In many ways, their comments demonstrate a sense of awe regarding nature's evolved systems. This sentiment, one that echoes the writings of Wes Jackson and other agrarian thinkers who believe agriculture should mirror the natural world, demonstrates the appreciation many farmers have developed for the life in the soil. It is worth noting that I heard this type of awe-struck remark from farmers of multiple methods, not merely those that adhere to an agrarian philosophy. This may reflect the uniqueness of some of the conventional farmers in my sample, but it could alternatively suggest that Thompson is somewhat incorrect in this assumption that only a narrow portion of farmers view soil in this light.

Viewing soil as alive has implications for how farmers treat their soil, in turn impacting the way they perceive their duty as a steward of the soil. Managing soil as a living community of organisms demands attention, affection, and care that can be avoided if you perceive your land as a collection of non-living constituent parts. Framing soil as a living community brings with it ethical demands that would not otherwise exist. This has important consequences for soil conservation. Fred Kirschenmann (2010) argues that an inability to see life in the soil has led to its mistreatment and that seeing soil as more than dirt is an important step in achieving a deeper appreciation for this resource:

Now soil scientists are beginning to talk about ‘soil quality’ and ‘soil health.’ This is a progression of ‘seeing’ soil—of seeing it as more than dirt. Scientists are ready to become lovers of the soil, to know it intimately, to care about it. This ‘inner’ seeing helps us understand soil as more than a medium (p. 287-288).

I interviewed a group of farmers who seem to be, as Kirschenmann calls them, “lovers of the soil” (2010, p. 285). Every farmer I interviewed highly valued the maintenance of soil health, one of the most important tasks they carry out on their farms. This sentiment was echoed time and time again by other farmers who suggested that it was difficult to think of anything more important than maintaining the soil—the basis of their entire operation and a symbol of many important facets of their lives. Through their care of the soil, farmers become stewards of this resource. The role of steward is an important one for farmers, as is made apparent by how much time they invest in fulfilling it. Every farmer has their own secrets and preferences for soil management, but what matters is that *every* farmer cares for their soil.

Like so many words associated with agriculture, stewardship is a term with multiple, competing definitions. Although several farmers in this study used the word “steward” or “stewardship” explicitly with regard to their soil management practices, they explained their duties as a steward in different ways, complicating the idea of a universal commitment to a

singular “stewardship.” While I suspect that there are as many definitions of stewardship as there are farmers, several examples of these more specific roles emerged over the course of this study.

In particular, farmers identified themselves as healer, banker, and religious steward.

Healthy soil is a priority for farmers. Several of the farmers I interviewed framed their discussion of soil stewardship in terms of healing or doctoring the land. For example, one woman drew a parallel directly between her actions, doctors, and the Hippocratic oath:

I just heard on the TV this morning a doctor talking about the cleanliness of surgical equipment. It has nothing to do with soils, but the thing that she said that would probably sum up my philosophy more than anything is— when they take the Hippocratic oath the first thing they say is: first of all, do no harm. So, first and foremost when I do my farming practices, I want to do no harm to the soil. I want to cause no erosion, or as little as possible, and I want to improve it so it is better when I’m done than when I started.

Here this farmer directly compares her philosophy on farming practices to being a doctor. The concept of health recurred in other interviews as well. Another farmer said that she “can feel health farms and feel healthy soils” so she is “trying to create the healthiest plants by creating the healthiest soil and by creating the healthiest animals.” These two farmers, while seeking to steward their soil and the rest of their resources, place their emphasis on health.

Yet another farmer used the concept of banking to explain his duty to the land. I earlier quoted this man, who referred explicitly to the soil as his “bank.” This metaphor, which arose several times over the course of our conversation, compares soil management to financial management. If the soil is his bank, then he is the banker, responsible for being a meticulous steward of this resource, his nest egg, for the long term. He explained, “if you don’t have soil, you don’t have a farm...I guess my goal is to leave a farm in better condition, more productive after farming it for a career, for a generation, than I found it.” Here he references not only wanting to maintain his “bank” but to grow it for the future, the dream of portfolio managers

everywhere. In this sense, he sees good stewardship of his financial resources, his “bank,” as good stewardship.

The idea of acting as a religious steward returned again with regard to stewardship practices. While not all farmers in my study are religious, religion dictates the stewardship role for a handful of producers and guides their behaviors with regard to soil. As one small-scale producer told me last summer: “We’ve always been concerned about conservation. From a religious standpoint we follow the idea that the world is fallen – there will always be problems. We follow the stewardship idea.” For this type of producer, one that involves their religion in their operation, the role of steward takes on a valuable dimension with regard to principles. Following the moral compass laid out by their religion provides yet another way to be an active steward of the soil. These three examples—healer, banker, and religious steward— demonstrate the variety of ways in which farmers conceive of themselves as stewards. These differences enrich the concept of stewardship and explain the ways in which the farmers themselves view this duty, while also setting the stage for the type of internal tension that I believe may create the conditions for failures of stewardship to occur.

Even though farmers imagine stewardship in different ways, there was an important commonality among them with regard to soil treatment: their desire to actively improve and sustain the soil. While there could be some motivation to falsely extol the virtues of stewardship in front of an outsider (me), the explanations farmers gave of their practices and their motivations for such actions left me with the impression that they were genuine in their comments.

It is difficult to imagine a world in which farmers would completely disregard basic soil maintenance, but the farmers I interviewed expressed a dedication to improving the soil. As one

conventional farmer said to me, “I don’t need to necessarily extract the last dollar out of [the land].” Instead, he would prefer “that the land be there tomorrow.” This farmer sees restraint and occasional material sacrifice as necessary components of stewardship. Several other farmers explicitly stated that they try to foster soil quality improvements: “I want to improve it so it is better when I’m done than when I started.” True stewards of the soil, I argue, share this concern for the long-term health and improvement of the soil. Every farmer I interviewed this spring expressed hope that they could foster such progress. When I asked why they sought to improve their land, many of them cited their children and future generations. As one farmer described: “Well on a long-term basis [soil is] very important— and for future generations. For immediate, you know the more ground you can till the more income you make on a short-term basis. But I’m concerned about you having some ground that isn’t washed away.” Whether a farmer invests in the newest fertilizer to add nitrogen to the soil or relies upon a crop rotation to maintain nutrient levels, all farmers make it their business to manage the soil. Stewardship of the soil is a genuine means for farmers to put their various beliefs and values about soil into action. For some farmers, this role of steward has become a duty and a requirement for moral living, providing a non-economic incentive to practice it. For *all* farmers, stewardship is a way, if they choose, to protect a resource that is of considerable importance in their lives.

The strength of this concept of steward also partially stems from the cultural association of farmers with the role. As Paul Thompson (1995) explains:

Indeed, the word ‘soil’ is implicitly, spiritually, linked to farming and gardening by many people, so much so that it is almost inconceivable to conceive of the farmer *qua* farmer as anything less than steward of the soil. Farming that abuses soil is bad farming, meaning not merely that it harms something of value, but that it is not consistent with the true spirit of farming itself (p. 2-3).

Producers, in identifying as farmers, are expected by society at large to steward the soil. It can be easy to discuss farmers in isolation, forgetting to account for this pressure and the other forces that dictate how agriculture in Iowa has evolved.

However, this rhetoric surrounding stewardship can be deceiving because this cultural identity of farmers as stewards may not depend on farmers' actual actions at all. Instead, Paul Thompson argues that Americans continue to associate farmers with the concept of stewardship even as they harm the environment:

Yet despite this evidence of agriculture's harmful impact on environmental quality, farming remains a prime source of metaphors for the correct relationship between humans and the wider natural world. Farmers are thought to have a right and proper relationship to the land, rather than the venal and exploitative relationships used to characterize the personality of mine operators or urban developers. The farmer's admiration for rich, fertile soil is though proper, for example, rather than an instance of greed as when a carnival barker eyes an approaching sucker (Thompson 1995, p. 2-3).

Although farms increasingly resemble the industrial landscapes of mines and cities, farming remains a type of untouchable metaphor. Michael Mayerfeld Bell explains that "farming and rural life have a special status in our cultural imagination" (2004, p. 34). Rural living is stable, idyllic, and "closer to the simple and changeless truths of nature" than city living (2004, p. 33). America clings to this romanticization even as farming moves farther away from it. This image of rural America in many ways mirrors what have long been viewed as traditional agrarian values: hard work, simplicity, family, and stewardship. In many ways, farmers continue to hold these values, a continuation that props up their identity as stewards. This agricultural myth may be one reason why the rhetoric of stewardship was so prominent in my interviews.

Failures of Stewardship

The previous passage begins to address the very real tension between claims of stewardship and the outcomes of agricultural practices. While stewardship was seemingly

universal in my interviews, questions arise when confronted with the realities of soil health today. Erosion, pollution, and other kinds of soil degradation are all occurring and in recent years scientific studies have cast doubt that all agricultural practices are equally environmentally responsible. Although all farmers say, even believe, that they are good and proper stewards of the soil, a gap arises between the ideal of stewardship for farmers and the individual practices that occur. Understanding the reasons why this degradation is allowed to happen may be helpful in addressing these problems in the future. I propose that a portion of this degradation, and the farmers' accounts of it, can be accounted for by two things: variations in the decision-making frameworks of individual farmers and differences in the ideological perspectives of my interviewees.

Farmers are constantly making decisions about their operations—trying new techniques, selecting varieties to grow, and choosing fertilizers, among countless others. Oftentimes farmers have to include a bewildering variety of factors in their thinking—yields, price, erosion potential, equipment and farmhand availability, to name a few. Every farmer has a unique framework they use when making decisions about their farm; differences in the priorities within these frameworks can have significant ramifications for farmers' stewardship of the soil. One particularly prominent difference was the privileging of material and economic benefit over long-term conservation. While farmers see themselves as stewards of the soil, it can be challenging to prioritize conservation if your livelihood is in danger. As one farmer said: “You have to be profitable to stay in business.” Yet another farmer, well known in the county for his organic methods, told me that if you are not financially sustainable as a farmer, you are not sustainable. These types of remarks indicate that short-term motives are at the forefront of many farmers' thinking regarding their operations. Many farmers believe that short-term costs *must* be

at the top of their list. Farmers face increasing costs for inputs, fuel, and machinery and are dependent on markets for their financial stability. Acting under such fiscal uncertainty, it can be difficult to clearly assess short-term economic versus long-term environmental costs for a farm. As one farmer explained: you will not be around tomorrow to worry about the impact of your methods if you cannot pay the bills. With this type of thinking, stewardship be compromised in favor of yields and production as farmers may be unwilling to sacrifice their economic interests to fulfill their duty to the soil. Paul Thompson (1995) agrees that placing conservation before production and profits cannot be assumed for all producers:

The traditional agrarian view of stewardship can be summarized as a religious duty to protect and foster the beauty and integrity of God's creation. The primary flaw can be summarized, as well. Traditional agrarian stewardship is conceived as a duty ethically subservient to production; hence when stewardship would entail constraints on production, duties to nature seldom prevail over the productionist ethic (p. 72).

This triumph of productionism over stewardship is common in today's high-pressure market system and will likely lead to sacrifices with regard to soil management, even if the farmers hold ideals about stewardship. This represents one particularly detrimental difference in some farmers' decision-making priorities.

Evidence of such sacrifices in soil health for the sake of profit is plentiful in talking to the farmers in my sample. For example, there are farmers in my sample who believe that their cash-strapped peers simply *cannot* adequately conserve the soil, even if they mean to. As one farmer explained: "there's still some unscrupulous farmers out there that don't do a very good job." Most of the time he believes that the farmers who perpetuate these problems "are more financially strapped" and "are poor operators" who are "doing things that should never be done to those fields." Additionally, participants described farmers whose desire for financial stability and profit causes them to cut corners on conservation even when they are not economically

marginalized. By planting more genetically engineered seed than the government allows or failing to provide enough cover on highly erodible land, farmers can save themselves time, increase yields, and improve their profit margins. One conventional farmer described the process of mining the soil, the process of depleting soil's nutrient content without replacing it, thereby increasing profits but undermining soil fertility:

If somebody has mined the soil to the point that that's no longer productive, even though the soil might still be there. They've not reestablished the phosphorous, potash, and all of those things. And the lime, pH of the soils and all of those things where you just mine the soil. There's pretty good examples of that around the country anymore. Especially with the \$400-\$500 cash rents, you can kinda come rollin' in as a large operator, or as a small one, but you can take crops off of it for 5 years, 10 years and depreciate and deplete what's there from a fertility standpoint. Still looks like a farm, but the resources are gone.

In this case, the renter failed to perform their stewardship duties. Even for farmers with similar models and ideologies, these differences in decision-making frameworks can be the difference between fulfilling their commitment to soil health and sacrificing conservation for short-term gain.

While the existence of different decision-making frameworks explains some of the degradation of the soil, I also argue that some farmers' encounters with bad stewards stem from tension between the two main models of agriculture—industrial and alternative—that exist within the United States. There are ideological differences among farmers regarding how stewardship should be carried out. These distinctions demonstrate that while “most farmers accept responsibility to care for nature” (Thompson 1995, p. 72), perceptions of poor stewardship will persist as long as diverse ideologies regarding agriculture do. This is especially true in the case of alternative producers who, almost by definition, view the methods of industrial farmers as contrary to the goals of stewardship.

Every farmer has stories of the “other farmer” that they believe is not a good steward of the land. For many alternative farmers, this “other farmer” is an industrial producer. For some of these farmers, contrasting their practices with an “other” farmer may provide an avenue for a clearer explanation of their own methods and ideologies. For example, an organic farmer discussing environmental sustainability said:

And I don't begrudge any conventional farmer what they do. I just wish that there were costs associated with the environmental degradation that is happening and nobody is taking responsibility for it. And that, somehow that is accounted for because someday, somebody is going to have to clean it up.

This farmer sees conventional agricultural practices as part of a larger problem with regulation in the United States. Yet another alternative producer, this one referencing a nearby property explained:

It's rented out and when I see him...I mean he's a really nice guy, don't get me wrong. But, when I see what I consider abuse to it, like the going over the edge and the cropping of corn on corn and the, when I see the light spots. I mean you can see the soil, where it's turning light, which means you're losing topsoil. When I see that appearing there and I don't think it used to be, it makes me really sad because its part of family land that's disintegrating. I mean it's losing value and it's going to take a lot to retrieve and build up again.

These comments illustrate that for many alternative producers, farmers on the other side of the agricultural binary represent poor stewards, even if the farmer they are discussing exemplifies best practices within their chosen model of agriculture. This result is in many ways expected given that alternative producers are generally defined by their rejection of industrial methods. . Even if this is not the case, their comments demonstrate how farmers reference this binary in their daily lives and perceive farmers of the other model as poor stewards. Even in this small sample, there was a clear divide with regard to the “right” treatment of the land.

The difference in ideology and, in turn, stewardship practices, is rooted in farmers' divergent epistemologies. Knowledge is a crucial component of agriculture and I found that, as

Michael Mayerfeld Bell argues, preferred ways of knowing oftentimes coincided with particular methodological tendencies. In explaining his position, Bell provides a useful analogy between these two schools of agricultural thought and two large movements in philosophy: modernism and postmodernism. As Bell explains:

The connection of universalistic modernism to agriculture seems plain enough. Industrial agriculture's big markets, big technology, big science, or get-big-or-get-out farms are all moved by the all-encompassing, all-inclusive, all-consuming borderless logic of the universal—of truths that supposedly hold everywhere and of ways of being and doing that attempt, so it seems, to gain place everywhere (2004, p. 23).

This worldview belongs to producers utilizing an industrial model, which is market, technology, and agronomy-driven. Agrarian or alternative producers, on the other hand, belong to a group that supports “a pure ‘local knowledge’ agriculture based only on farmers’ own knowledge, and aimed at ‘putting the first last’” (Bell 2004, p. 23). He continues:

These supporters argue for the importance of creating ‘an alternative knowledge system that functions primarily outside of the dominant institutions of agricultural research and extension’ in the words of Neva Hassanein, one such advocate. Instead of the top-down knowledge of the university, the state, and the corporation, their goal is to create local networks based on farmers’ bottom-up knowledge (Bell 2004, p. 23).

These farmers are less interested in the information being received from state extension services, agronomists, or agricultural companies and more interested in learning through local expertise and experience. Differences in these systems of knowledge underlie the apparent tensions within the concept of good stewardship.

Agriculture demands some toll on the physical environment, and when evidence of poor stewardship arises, there must be some reason for it. Much of the divergence between thought and action stems from the pressure to privilege the short-term over long-term calculations. Additionally, differences in ideology and executions of those ideologies can account for much of the poor stewardship in the United States.

This dichotomy of worldviews seems to me to aptly frame much of the discussion surrounding agricultural practices. One of the farmers I interviewed supported this idea by actually voicing her thoughts about the differences in knowledge construction that exist in agriculture today:

One of my big issues, it's not only with these different farmers, but it's also, I think the land grant university mentality which all these people are coming out of is, they're looking for the absence of things and what we're looking at is balance.

Some farmers used agronomists, soil samples, and the state's newest extension recommendations to scale their chemical inputs for the year. Others reported various methods from calling their neighbor, examining plants, and tasting the dirt to solve problems on the farm. These competing ways of knowing are apparent and function to widen the gap between the ideas of "good" methodology and practice for farmers of different schools. This comparison makes evident the drastic gulf between the two American agricultural ideologies and, I argue, account for some of the claims of poor stewardship that arose over the course of this study.

Saving the Soil: Conservation and Government Regulation

Thus far, I have yet to mention a very important player with regard to soil conservation: the government. While my focus is farmers, it is worth an aside to briefly examine the conflicts that arise between the government and farmers and discuss the importance of these tensions in the outcomes of conservation plans.

One idea that farmers of any type, size, and age can generally agree upon is that the government's conservation and regulation plans are insufficient. Many communicate their belief that the plans oftentimes misunderstand their techniques and constrain their practices. The reasons behind this belief that some (or, in some cases, most) government action is misdirected are diverse among producers. Much of the difference stems from the ideological divide within

farming. Many small, alternative producers want more regulation on the use of chemicals, genetically engineered crops, and other synthetic inputs: “You know, minimizing the risk as best as they can would make for as responsible of a conventional grower as possible. And I’m not sure that’s being done without the regulations that we currently have.” Many large, industrial farmers, on the other hand, want less government intervention and independence from government conservation plans. There are, however, exceptions to this belief. One farmer, a man that conventionally farms several thousand acres, suggested that he would not be popular for lobbying for “higher enforcement,” but that if farmers “are not forced into it, then they don’t do it.”

Farmers are notoriously independent in thought and action. For many, agriculture is a moral way to make their living and act in a way they perceive as right. The farm and fields become associated with feelings of freedom and right action. The value that some farmers place on independence is apparent in their rhetoric. For instance, one farmer discussing the current state of government regulation said:

It’s just, I don’t know how to quite, you know I believe it’s really necessary to protect it. I guess what goes against my grain is having the government tell me what I need, you know, that my independent side doesn’t like that.

Another farmer agreed that the government is a force he would rather exclude from his operation:

I’m still happier making it, you might say, myself, growing a 200 bushel crop without an insurance check as we did this year or a government subsidy or anything of the like, rather than growing a small crop and collecting insurance claims and federal subsidies and whatever else might come down the line.

This type of independent, anti-government streak is common in the agricultural community.

Farmers love to be able to say: “I get to be my own boss, get to work outside, and am not compromising my ethics in my work.” In a world where so many people do not get to be their

own boss, the freedom of working your own land is significant. These characteristics help to explain why farmers do not always listen to and are not always happy with the government's "information" about resource management (as it would be called by one of the farmers).

This study also suggests that while farmers are under enormous pressure from government conservation agencies, agricultural companies, and advertisers, they are, and always will be, the people with the final say in adopting any practice— be it for profit or conservation. This has the effect of placing the burden of saving the soil back onto the farmers themselves, even as the government attempts to intervene. This dynamic is apparent in the comments of farmers themselves and should be accounted for in the creation of conservation policies. One farmer I interviewed gave important insight into the decision-making processes of producers when he explained his attitude towards regulation:

Well you have to comply and especially in years past if you wanted to participate in the government payment programs—and so, yes, I've complied. But, they had one field—but it was a big field, it was 60 acres out of 80—that they said I had to no-till corn and so on. But 40 acres of it's flat... And I argued with them, and they backed down. But that's back to the word of experience, I guess. So certainly it's information and needs to be considered, and in most cases is close enough, but as I say, in the application of the feet on the ground, sometimes you have to work with it.

He sees government conservation plans and regulations as useful advice to be considered in his decisions, but the decision eventually depends on him. Similarly, another farmer referring to new regulations regarding chemical fertilizers said, "Well, its gonna make it harder to keep your fertility up or its gonna make you bend the rules." He was not the only farmer who suggested to me that farmers are more than willing to overrule government policy for the sake of doing what they believe is right by their land and their operation. In fact, the same farmer went on to argue that although "the government tries to change the ways" of some of the lesser stewards, they "really don't have much leverage on them." As he said, "That's the sad part of it. The less you

take care of it, the less they can do to you.” These comments suggest that farmers make the final decisions for their land, regardless of government policy. In many ways, this realization suggests that agricultural policy is not all that different than any other conservation plan. As Walker and Ryan (2008) suggest, understanding the public’s preferences is necessary for to create “priorities for conservation” that “the public will support (an essential component to successful conservation)” (p. 141). This is especially true in the case of farmers, who have a much broader ability to impact the land directly than the average member of the public. As J.L. Anderson observed through his study of the Corn Belt in the post-war years:

But for all these voices proclaiming the merits of new technology, none of them could make farmers change their behavior. It was farmers, people with grease under their fingernails and Atrazine and crop oil on their overalls, who industrialized the rural landscape (2009, p. 193).

Only by understanding farmers’ voices and preferences will change come to agriculture. This is not to argue that all conservation attempts should be abandoned if farmers do not rush to adopt them, but it is important to recognize that the government needs to provide incentives that influence the decisions of individual farmers if real change is to come to agriculture in the United States.

Conclusions

All of this, then, indicates that more than self-interest drives the conservation of soil in Iowa. An entire system of beliefs and values has been built upon an appreciation of this important resource. Based on my interviews with current farmers in east-central Iowa, I believe that the complex set of meanings they associate with the soil will ultimately protect soil from total degradation. Soil is of vital importance to the survival of farm operations, but also provides a type of symbolic solidarity. The meanings that are found in soil emphasize the importance of reclaiming conservation over this precious resource before it disappears. Not only is soil a

critical ingredient for the survival of humans, it provides essential support for the farmers we depend upon as well.

Professor Andelson recently asked me if I am optimistic about the future of Iowa's soils. My general attitude in recent years has been no. My belief was that agriculture had other priorities than conserving soil. Over the course of this study, however, this pessimism has abated. Talking to individual farmers in a state where the family farm is still the norm has convinced me that something can, and will, be done to save the soil. Soil is important for their livelihoods, but that can lead to a focus on short-term profits under certain circumstances. More importantly, I have learned that these material incentives do not always prevail. For many farmers, soil is too valuable as a symbol of larger concepts—including their own identities—for them to allow its destruction. Although some may argue that the system in which farmers operate is too overwhelming for individuals to matter, I agree with Anderson (2009) that it is the actions of farmers themselves who transform the agricultural landscapes. Individual farmers can, and will, save Iowa's soils.

As with any prediction, however, this outlook is subject to change. There are important decisions to be made in the coming years, some of which could have significant ramifications for these predictions about soil. For instance, much of this analysis is dependent upon the continued success of Iowa's family farms. Family farms as an institution are crucial for the continuation of the complex system of beliefs and values that protects the soil. If, someday, absentee landlords or large corporations run the majority of Iowa's farms, it is difficult for me to imagine that these values would remain. Therefore, a significant change in tenure patterns could impact this prediction. Additionally, I believe that the continued care of the soil is in many ways related to farmers' economic success. In times of extreme crisis, it would be understandably difficult to

privilege conservation above profit. I do not believe conservation should be viewed a luxury, but it is often treated as such. Economic hardship could very well incentivize short-term thinking, shifting the priorities of farmers who would otherwise steward the soil and endangering it in the process. Even with these contingencies in mind, I am optimistic about the future of the soil in Iowa. While much of the literature regarding the future of the resource disagrees, my experience suggests that there is reason to trust farmers with the job of saving Iowa's soil.

Appendix A: Interview Questions

Biographical:

1. How long have you lived in Iowa? On your current property/land/farm?
2. What do you produce?

Methods and Operation:

1. How would you describe the land on which you live/work?
2. What methods do you employ in production? (organic, chemical-free, synthetic fertilizer, etc.)
3. Do you use these methods on all parts of your farm? Do you treat certain areas differently than others? Please explain why/why not.
4. What kinds of soils do you have on your land? Do they demand any special treatment?
5. How do you maintain soil fertility? Are there methods you are considering applying or would like to apply that you have not?
6. How much erosion occurs on your farm? Do you measure it? If so, how? If not, why not?
7. When, and with what crops, do you experience the most erosion? Do you target any preventative measures towards that time?
8. How do you prevent/combat erosion?
9. Do you consider soil maintenance and fertility a central part of your work? Why or why not?
10. Do you do anything to comply with government dictated conservation plans? If so, what?
11. Do you think government conservation policies are necessary? Why/why not?
12. How do you decide what you grow and where to plant it? Do you use the corn suitability index? Do you refer to any other indices?
13. How much does soil quality translate into land value?

Other:

1. When I ask you about your “land,” what do you think of first?
2. What is your favorite part about being a producer?
3. Why do you continue to farm?
4. What is your favorite memory about being a farmer/producer? A favorite memory about you and your land?
5. How do you define “soil?” Is it important? If so, why is it important to you?
6. Do you hold any religious, philosophical, ideological, or other beliefs that affect the way you view soil? Your land?
7. How would you summarize your general beliefs about the environment?
8. When evaluating the value of your acreage (both monetarily and personally), what types of factors do you consider?

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