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

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 produ6(g)10(rm(an)t12(y c)t12(i(pr -2.3 -2(he)4kha)4(ps)-1(m)-2 possibiliti oru(t)-0(2001, p. (nd j)-12(uo-ha)4(pod(l)-2(t)-)-2(s)-11(h f)3(a))4(t)-2-6(nt)-2(. A)2ho24 h thmoves f

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 E

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 tilth, 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).

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'

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

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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

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 gr-2( ) f eons

> …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.

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 hume

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

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.

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

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 s

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

Producers, in identifying as farmers, are expected by society at large to steward the soil.

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

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, s

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

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.

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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

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.

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