

Article

Landscape Performance: Farmer Interactions across Spatial Scales

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Abstract: Agricultural lands in the north-central United States represent some of the most uniform and non-sustainable landscapes in human history. The conformity in land-use practices reflects a broad social agreement, albeit unspoken, of having an influence on agricultural practices and is referred to as a normative landscape. Implementing conservation agricultural practices requires engaging such social agreements in ways that question and disrupt them. By using a mixed methods approach to support the application of the influence of a normative landscape, this study examines two research questions: (1) How do regionally normative landscapes influence site-based farming practices? And (2) To what extent do aspects (i.e., crop areas, buffer areas, and living areas) of individual farms contribute to the development of those regionally normative landscape meanings? When examining the first research question, an analysis of 21 interviews with farmers in Wisconsin and Illinois' Driftless Region revealed two recurrent themes: "road farming" was a common way in which farmers communicated with each other about farm practices, and land-based learning events were opportunities to foster dialogue about farming activities that shape normative ideals. The results from the thematic analysis connect site-based farming practices within a broader regional context. A quantitative analysis of a survey of 82 farmers in the same region indicates that social agreement to evaluate the farming practices of others is strongest for crop areas. Our findings suggest that farmers and professionals wanting to improve conservation outcomes should use local events that reflect sustainable practices to disrupt and re-envision regional norms to spread conservation farming practices.

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1. Introduction

The 2023 United Nations report for sustainable development goals states the need to produce food in a sustainable fashion, design landscapes that promote biodiversity, and care for our water resources [1]. In order to address those needs in the north-central United States, there is a need for government agencies, farmers, and organizations to align conservation and agricultural goals [2]. Empirical evidence indicates that for meaningful improvements in ecological functioning that build healthy soils, improve water quality, and foster habitat for biodiversity, it is essential that agricultural practices move from a system based on annual row crops to a well-managed perennial system [3–8]. Despite evidence suggesting the need for an agricultural system based on perennial agriculture, the adoption of such approaches has lagged. For instance, in Wisconsin, only 7% of the agricultural land is in pasture [9], and much of the pasture contributes to high erosion, habitat degradation, and reduced water quality because of poor management. In order to improve ecological outcomes, it is becoming increasingly evident to question the normative landscape of monoculture crop agriculture and re-envision the compatibility of conservation with agriculture.

In this manuscript, we use a place-based approach to frame a regional identity based on landscape conditions resulting from commonly accepted agricultural practices. These standard agricultural practices not only characterize the visual aesthetic of the farm landscape but also serve as a normative influence on the right way to farm. This normative influence functions as a tacit interaction among farmers in that it affects decision-making for any given farmer about their land and provides a yardstick by which farmers evaluate the goodness of other farmers. This yardstick is referred to as a performative landscape in that through the everyday management of their land, farmers express a regional identity in ways that could either perpetuate or contest place meanings associated with regional forms of agriculture. Our study builds on work by Morse and colleagues, who framed New England farmers as a network of tacit agreements about the right way to practice farming as if each landowner is performing a “New England farm” for others [10]. The argument and evidence they develop portray private land management, in this case farming, as a place-based set of performances that collectively lead to a homogeneous landscape for New England [10]. Performance is framed as actions that maintain a biophysical landscape in ways that conform with an idealized image expressed through the dominant social discourse [11]. We examine if the performative elements of land management detailed by Morse and colleagues have applicability in the industrialized agricultural landscapes of the north-central United States. A multi-scalar connection between regional identities and site-based management decisions is developed to provide insight into ways to increase the amount of conservation-based agricultural practices in the Driftless Region of Illinois and Wisconsin. Employing a regional framing is responsive to recent literature that cites the need for studies to consider the context and relational influences on farm management [12,13] rather than viewing farming decisions as isolated human behaviors.

2. Conceptual Background

Agricultural landscapes in much of the north-central United States have been developed into uniform corn and soybean fields [12,14,15]. With much of the landscape privately controlled, the conformity that transcends property boundaries indicates an intense level of social agreement about the appropriateness of various farming practices [16–18]. When farmers act on their land by growing vast tracts of corn and soybeans, they conform with and reinforce tacit norms of what it means to be a good farmer [17].

Literature that employs the concept of the “good farmer” appreciates that the farming practices of any given farmer partly involves communicating to a larger audience. To be known as a “good farmer”, it is important to manage land in a way that builds social, cultural, and symbolic capital [19]. In terms of strategies to convey good farming to neighbors and their community, Burton and colleagues identified three elements that function to do so: (1) skillful practices on their land, (2) outward signs that skillful practices have been performed, and (3) the signs must be viewable to other farmers (such as viewing farmland while driving, referred to as ‘road farming’) [20]. To be considered skilled at their craft, it is expected that farmers seek to manage their land in ways that comply with regional expectations for good farming [21].

While being a good farmer is dynamically constructed and complex, in the north-central United States, being a good farmer typically revolves around maintaining a ‘tidy’ farm [17]. Tidy farms are a visual representation of a good farmer cultivating, planting, plowing, and properly fertilizing fields. A challenge when introducing new or different practices that improve ecological functioning, such as well-managed rotational grazing, is that adapting land-use strategies disrupts what is interpreted as an idealized set of practices—such is the power of a normative landscape [22–24]. For widespread adoption of agricultural practices that improve ecosystem function, it will be necessary to reshape those practices that signal a “good farmer”. Having a widely shared understanding of what a “good farmer” means is indicative of a normative standard pertaining to what is considered an ideal agricultural practice [16,24]. To make sense of how normative meanings are developed and influence change in agricultural landscapes, we employ a place-based

approach [25]. Place research is anchored in human geography [26] and was initially formulated to account for a site or locality as being more than a ‘spot on earth’ to be used merely as the backdrop in which human actions transpire [27]. As the research evolved, places were viewed as being collectively produced, where socially constructed meanings influenced human actions [28]. The concept of “place-making” emphasizes the interactive processes that engage people with one another and their environments to bring about new relationships between people and places [29]. Place-making is a dynamic and continually evolving set of interactions between people and their landscapes [30].

Place-making examines how meanings are developed and redeveloped through language, visual interpretation, and social interactions [31]. As people alter the physical landscape around them, the results of their actions become part of a public discourse where people and organizations engage one another [32] about the meaning of such alterations, leading to shared knowledge about a place [33]. When humans become unaware of their role as the authors of meaning, knowledge appears objective and universal [34]. The development of widely-held inter-subjective agreement about landscape conditions leads to the development of a landscape in which individuals unconsciously engage in the social norms they have created, such as complying with expected practices for a good farmer [35].

The development of a normative landscape makes a place more than just a backdrop upon which humans act; instead, the landscape plays an active role in influencing human actions [28]. Communities perpetually live, work, and interact in places that give cues about what is “in place” [36]. Strong inter-subjective agreement normalizes what behavior and physical features should and should not occur in a specific place [17]. Conformity with what is perceived as normal allows a place to become a force that influences landscape change and guides “what ought to be” [37].

Managing landscapes is inherently part of place-making processes. When people shape biophysical features, they send messages that a broader audience can interpret [22]. While agricultural lands are often privately controlled, they are typically visible to the public [38]. As far back as 1959, Goffman referred to this visibility of privately owned lands as being the “front stage” [39]. When privately controlled landscapes are conspicuous from public areas such as roadways, their management comprises a critical aspect of regional place-making processes [10]. As the physical conditions of farms are evaluated by others who view them, any given piece of farmland can disrupt or reproduce normative place meanings [40].

When farmers engage in “conventional agriculture”, they conform to the normative landscape, thus approving and affirming the normative ideal’s dominance. Normative landscape practices are often deeply entrenched in regional culture and framed as “in place” [32], even though most farmers do not consciously recognize the normative aspects of regional landscapes [41]. In doing so, their behavior could be described as conforming to that which is socially acceptable, having sound judgment, and being practically rational.

Normative landscapes are not developed in isolation; instead, their development depends upon social and political forces across spatial scales [13,42]. The act of farming is a localized event, but the collection of actions across a regional scale characterizes place-making processes [12,13]. The multi-scalar quality of farming actions embodies elements of relational place-making and acknowledges that biophysical and social shifts are interdependent with other meaning-making processes [43]. Research that appreciates place-making as multi-scalar could explain how farmers who aspire for improved conservation outcomes can use local events, such as farm management, to disrupt regional norms [13]. Rather than considering place-making as a bounded localized event, relational place-making considers that places are nested, and the social meaning flows between places and events [13,44,45]. In this paper, we seek to examine how site-based management actions are informed by and contribute to the development of normative landscapes that are regional in scale. Specifically, our research questions are as follows:

Research Question 1: How do regionally normative landscapes influence site-based farming practices?

Research Question 2: To what extent are the three areas of a farm (i.e., crop area, buffer area, and living area) relevant to demonstrating and assessing good farming practices?

Our research focused on two adjacent counties straddling the state line between Illinois (IL) and Wisconsin (WI) (Figure 1). Jo Daviess County, IL, is in the northwestern corner of IL, while Grant County, WI, is in southwestern WI. Together, these counties form a distinctive landscape defined by the Mississippi River on the west and hilly topography with bluffs and ridgelines. In contrast to the natural history of the surrounding land, the formation and movement of glaciers did not occur in the Driftless Region, leaving a distinctive set of biophysical characteristics that produced a hilly landscape with a high concentration of streams [46]. While lead was often shipped out of river cities such as Dubuque, Iowa, and Galena, Illinois, the mining occurred in an assortment of towns across the Driftless Region [47]. That patchwork necessitated the development of roadways and river ports, which fostered opportunities to transport agricultural goods. As mineral resources depleted, the region became more reliant on agriculture [48]. Despite the challenges posed by farming steep slopes and hills, agriculture succeeded in part because of its focus on dairy production and cheese-making [49]. Although these communities are now centered on agricultural production, they still identify with their mining past, with town names such as Mineral Point, New Digging, and Lead Mine.



Figure 1. Highlighted are the study counties of Jo Daviess County, IL and Grant County, WI.

The evolving interactions between socio-economic forces and land-use practices make the Driftless Region an ideal location to study the social processes of agrarian landscape changes. Today, in Grant and Jo Daviess Counties, farming has shifted away from cattle-based dairy and beef farming toward industrial row crop production [50,51]. Significant shifts to row crops are often associated with diminished wildlife habitat, poor water quality, increased soil erosion, and farm consolidation [52–54]. Using the above place-based theoretical context, we develop insights to frame landscape performance by characterizing the interconnections between farm-based practices and regional landscape production.

3. Methods

As the authors set out to conduct research underpinned by the concept of place, we acknowledge that we inhabit a place that shapes thoughts and the way people interact with us. In his 1986 seminal text [55], Nagel referred to this concept as a view from somewhere rather than a view from nowhere. Being transparent about positionality allows us, as

researchers, to recognize our humanity and the way it shapes our data collection and analysis [56]. As the lead author (NAME BLINDED FOR REVIEW), I was involved with facilitating the semi-structured interviews, facilitation of focus groups, and the analysis of data. With that, I share with you a perspective of how I am positioned in relation to this research.

My journey to studying the Driftless Region of Southwestern Wisconsin and Northwestern Illinois began in my childhood. My interest in natural resources and the outdoors was fueled by a childhood where I spent almost every waking hour outside, playing sports, bicycling, swimming, and fishing with friends and family. Most of my outdoor pursuits occurred in the heartland of the United States, as far south as the Gulf of Mexico and as far north as Lake Superior. In the book *Nature's Metropolis: Chicago and the Great West*, William Cronon [57] details an acquired taste for the beauty of the Midwest in his positionality statement. I relate to Cronon's endearing sentiments because, much like him, my life experiences have allowed me to grow fond of the many lakes, rivers, fields, cities, prairies, and forests of the Midwestern United States.

Affection for midwestern people, wildlife, and landscapes motivates my research. Being an avid waterfowl hunter, my first interactions with the farmers and agrarian landscapes of the Driftless Region were not while conducting research but rather in a duck blind on the Pecatonica River. In the following paragraphs, I detail a memorable early-season teal hunt I shared with local farmers before starting this research project. By detailing that experience, I hope to give the reader a glimpse into my sense of place within the Driftless Region.

It is 4:30 a.m. on the Saturday of Labor Day weekend in Monroe, Wisconsin, a sizeable town in Southwest Wisconsin with a population of roughly 10,000. My friends and I pile into a white Chevy truck to head west on Highway 11. On most Saturdays, Highway 11 at this hour would be clear of traffic. However, this Saturday is different; it is the Wisconsin Green Wing Teal opener. Just before leaving town, we stop at the gas station to pick up some black coffee and a can of bug spray, both items essential for the day's activities. Inside the gas station, everyone but the gas station attendant is dressed in camouflage. Some are even trouncing off to the coffee machine in chest waders, bubbling with excitement for the quickly approaching "shootin' time". If one were to peer through the gas station windows out to the road, they would see a school spirit sign from last night's Monroe Cheesemaker football game, a billboard for Busch Light, and the local bank wishing us hunters luck in our upcoming venture. Sipping on my coffee as we check out, I feel a sense of belonging.

My peers in the gas station all awoke this morning to take part in the same yearly tradition as me. As the air starts to thin and the days grow shorter, we know it is time to put on camouflage and go to the duck blind. We all support the conservation of wetlands through the purchase of a U.S. Duck Stamp and membership in our local Ducks Unlimited chapter. Each of us duck hunters in the gas station carries personal meanings that are, at the same time, both unique to each person and shared through the spirit of the community.

If sipping coffee together on any other day, in any other place, we might have little in common. However, on this morning, in this gas station, we are duck hunters. We hold onto what it means to be a duck hunter with great pride because it defines not just who we are but the land we live on. With this early morning action in the small Midwest town of Monroe comes a shared understanding of what the migration of a one-pound Green Winged Teal means. Last week, the Teals were in Canada, and the gas station was empty. This week, the Teals are in Monroe, and the gas station is busy.

3.1. Mixed Method Approach

Mixed method approaches have a long history of enriching data analyses for research about rural communities [58]. The methods used herein were implemented sequentially, allowing for a developmental design. The developmental mixed method approach employs several methods, each informing the subsequent method [59]. The sequential process of collecting data from farmers in the study site started with semi-structured interviews that

involved open-ended questions and then was followed by focus groups. The final method of the study consisted of a survey with primarily quantitative measures and response scales. As the research progressed, each approach built on the preliminary findings of the prior method. Developmental mixed-method approaches have been used in fields such as rural sociology, urban planning, leisure studies, and natural resource management to initially engage a population through interviews, which provides insight with which to develop a generalizable method, such as a survey [60–62].

Analysis started with data from the semi-structured interviews, and that analysis informed the focus groups, which examined the influence of regional landscapes on site-based farming practices. Complementing our qualitative research, the survey data provided a further explanation of the areas of a farm seen as important when demonstrating and assessing conformity with a normative landscape. Along with the developmental relationship across the methods used in this study, we also employed a complementary relationship [63] in which findings from one method substantiate or bring new insight to the conclusions of another [64].

3.2. Semi-Structured Interviews

We started data collection by conducting 21 in-person semi-structured interviews with farmers from September 2018 through November 2019. Interviews were conducted at the participant's location of choice, which was typically their barn or place of residence. As part of the interview process, we audio-recorded and then concomitantly transcribed and conducted preliminary analyses of each additional transcript. The participants for the 21 semi-structured interviews were selected through snowball sampling. Also known as referral sampling, participants were asked for the names of other farmers who could become future study participants [65]. A long-documented shortcoming of snowball sampling is that researchers might gain insights from a comparatively homogeneous social network [66]. To ensure a diverse set of perspectives, we started snowball referral chains with different local informants networked within distinct social/professional groups that were identified due to their affiliation with agricultural organizations, local community leaders, local university extension agents, and county soil and water conservation districts. Utilizing different local informants as starting points for referral chains is consistent with a method put forth by Ritchie and colleagues as a commonly accepted practice [67].

3.3. Focus Groups

Informed by the interviews, two focus groups of farmers were each two hours in length and conducted at the respective county extension offices in the two months following the completion of the semi-structured interviews. One group had three participants, and the other had five, which is the recommended range to encourage a diversity of thought while allowing all to participate in the dialogue [68]. Participants for the focus groups were selected from a list of farmers that participated in the semi-structured interviews. When selecting focus group participants, choosing farmers with different types of agricultural production was a priority. Dairy, row crops, and beef production were represented in each focus group. The questions asked during the focus groups were built upon the preliminary findings from the semi-structured interviews. Based on what was gleaned from a review of the semi-structured interviews, we used the focus groups to gain deeper insight on the following topics that came forth in the interviews: types of farming operations, changes in farming practices, what makes the Driftless Region unique, quality of rural lifestyles, wildlife, farming practices, and legacy for the next generation. By engaging in a conversation on these topics, farmers expressed ways in which regionally normative landscapes influence site-based farming practices. To facilitate the interactions necessary between group members, the lead author participated as a moderator guiding the discussion. Focus groups are distinguished from interviews because they promote interactions among participants, encouraging a breadth of perspectives and may evoke new ideas [69]. The focus groups were audio-recorded and transcribed.

3.4. Thematic Analysis of Interviews and Focus Groups

The thematic analysis examined to what extent a regional normative landscape has relational influences on site-based farming practices. Semi-structured interviews and focus groups were analyzed, identifying recurrent patterns that would respond to this question. The identified themes are noteworthy because they are indicative of inter-subjective agreement among interview participants [70]. The quotes are used to illustrate recurring patterns amongst themes that were established across numerous interviews and provide evidence of a strong social and community-based context to understand the reinforcing social structure that connects farming practices across the region [71].

Thematic analysis starts by establishing intercoder reliability pertaining to the identified themes. Intercoder reliability was established by the authors and followed procedures recommended by O'Connor and Joffe [72]. From an initial review of the transcripts and a meeting between the authors, a preliminary set of coding frames was identified. Those preliminary coding frames were applied as the authors reviewed the same transcript independently. After the initial transcript review, the authors were 57% in agreement on coding. The authors engaged in additional meetings and further refined the coding frames to establish an intercoder reliability agreement of 79%. With concurrence above the minimum acceptable level of 70% [73], the coding rules were determined to be reliable and were adopted to guide further analysis. The coding rules were applied to analyze 369 pages of single-spaced semi-structured interviews and 78 pages of focus group transcription.

3.5. Survey Measurements

Informed by the findings of the semi-structured interviews and the focus group, the survey had open- and close-ended questions informed by preliminary findings from the focus groups and semi-structured interviews [74]. The scales for demonstrating and assessing good farming practices drew upon preliminary insights from the semi-structured interviews and focus groups (Tables 1 and 2). We examined how regionally normative landscapes influence how farmers demonstrate and assess good farming at a particular site. *Demonstrating* good farming examines how farmers maintain a landscape to convey that they are good at their jobs. *Demonstrating* good farming recognizes that each farmer's land is within public view, and they know it will be interpreted and evaluated by those who pass by [22]. From another perspective, *assessing* good farming considers the way that other people who pass by farms interpret farm landscapes and evaluate the extent to which the manager of the land is a "good farmer" [38].

The kindred concepts of *demonstrating* and *assessing* good farming were each measured with a 14-item Likert-type scale in which respondents indicated how much they agreed or disagreed (on a 5-point response scale from 1 = strongly disagree to 5 = strongly agree). The statements described *demonstrating* and *assessing* good farming from the perspectives of the crop area (5 items), the buffer area (4 items each), and the living area (5 items each). Cronbach alphas for *demonstrating* and *assessing* good farming were calculated for each sub-scale. The alphas for *demonstrating* good farming were as follows: crop area $\alpha = 0.705$, buffer area $\alpha = 0.619$, and living area $\alpha = 0.697$. The alphas for *assessing* good farming were as follows: crop area $\alpha = 0.606$, buffer area $\alpha = 0.741$, and living area $\alpha = 0.885$. The response scales for each of these areas for *demonstrating* and *assessing* good farming were adequate due to exhibiting an internal consistency above Cortina's [75] threshold of $\alpha \geq 0.60$.

A confirmatory factor analysis was also performed, and the factor loadings ranged from 0.68 to 0.95, which suggests an underlying common factor unique to the bundle of items for each scale [76]. However, with limited sample size, additional indicators for model fit did not meet typically accepted thresholds of 0.60 or higher (Demonstration of Good Farming: ($X^2 = 203.76$ $df = 74$; SRMR = 0.07; RMSEA = 0.15; CFI = 0.84); Assessment of Good Farming: ($X^2 = 256.88$ $df = 74$; SRMR = 0.08; RMSEA = 0.17; CFI = 0.86) [77]. Indicators such as root mean squared error of approximation (RMSEA) are known to be sensitive when operating with small data sets [78]. The small sample size is a limitation of this data set and increases the likelihood of having type I error (rejecting a null hypothesis

that is true in a population). Future research could substantiate the model fit across the survey items.

Table 1. Demonstrating Good Farming.

Question Instructions Began with “I Demonstrate Good Farming Practices to My Neighbors by ...”	M (SD) $\pm$ SE ¹	Factor Loading
<i>Crop Area</i> ¹ $\alpha = 0.705$		
...raising a uniform crop	3.75 (0.75) $\pm$ 0.09	0.79
...managing crop residue	3.94 (0.80) $\pm$ 0.10	0.78
...minimizing erosion on slopes	4.45 (0.65) $\pm$ 0.08	0.71
...utilizing cover crops	3.80 (1.05) $\pm$ 0.13	0.75
...having limited weed growth	4.12 (0.64) $\pm$ 0.08	0.79
<i>Buffer Area</i> ¹ $\alpha = 0.619$		
...maintaining clean fence rows	3.65 (0.82) $\pm$ 0.10	0.85
...providing habitat for wildlife	3.79 (0.93) $\pm$ 0.11	0.68
...reducing overgrowth of brush	3.93 (0.79) $\pm$ 0.10	0.86
...using a farm pond to retain stormwater	2.77 (1.24) $\pm$ 0.15	0.74
<i>Living Area</i> ¹ $\alpha = 0.697$		
...have fresh paint on buildings	3.37 (0.85) $\pm$ 0.11	0.82
...mow around the farmhouse and other structures	4.30 (0.70) $\pm$ 0.09	0.77
...plant flowers around the farmhouse	3.75 (0.87) $\pm$ 0.11	0.83
...have a driveway free of potholes	3.85 (1.01) $\pm$ 0.12	0.81
...show a yard sign with farm and/or family name	3.72 (0.96) $\pm$ 0.12	0.69

¹ Measured on a five-point response scale from 1 = strongly disagree to 5 = strongly agree. n = 82.

Table 2. Assessing Good Farming.

Question Instructions Began with “I Can Tell Someone Is a Good Farmer by Seeing How They Are ...”	M (SD) $\pm$ SE	Factor Loading
<i>Crop Area</i> ¹ $\alpha = 0.606$		
...raising a uniform crop	3.76 (0.78) $\pm$ 0.09	0.72
...managing crop residue	4.01 (0.63) $\pm$ 0.08	0.83
...minimizing erosion on slopes	4.31 (0.63) $\pm$ 0.08	0.81
...utilizing cover crops	4.00 (0.73) $\pm$ 0.09	0.85
...having limited weed growth	4.03 (0.69) $\pm$ 0.08	0.78
<i>Buffer Area</i> ¹ $\alpha = 0.741$		
...maintaining clean fence rows	3.87 (0.71) $\pm$ 0.09	0.79
...providing habitat for wildlife	3.70 (0.94) $\pm$ 0.11	0.83
...reducing overgrowth of brush	3.83 (0.80) $\pm$ 0.10	0.86
...using a farm pond to retain stormwater	3.45 (0.91) $\pm$ 0.11	0.84
<i>Living Area</i> ¹ $\alpha = 0.885$		
...have fresh paint on buildings	3.33 (0.81) $\pm$ 0.10	0.89
...mow around the farmhouse and other structures	3.78 (0.72) $\pm$ 0.09	0.90
...plant flowers around the farmhouse	3.36 (0.76) $\pm$ 0.10	0.95
...have a driveway free of potholes	3.41 (0.85) $\pm$ 0.11	0.94
...show a yard sign with farm and/or family name	3.42 (0.75) $\pm$ 0.09	0.94

¹ Measured on a five-point response scale from 1 = strongly disagree to 5 = strongly agree. n = 82.

3.6. Survey Sampling Process

Various strategies were used to distribute the survey to farmers in Grant and Jo Daviess counties and secure a sample. The survey was administered using a purposive sampling strategy that specifically focused on farmers and their farming practices [79]. The survey was administered both online and in hard copy; the development of sampling frames was extensive, with several frames engaged between October 2020 and November 2021. Over the 13-month time frame, the survey was distributed online to listserv members of the Grant County Farm Bureau, Wisconsin Farmers Union, Jo Daviess Soil and Water Health Coalition, and the *Warren Flash*, a local, online-only newspaper. A broad set of sampling

frames allowed the authors to target a diverse group of farmers with the online version of the survey. Distributing the survey online was critical to the continuation of data collection during social distancing protocols due to the COVID-19 pandemic.

For the hard copy of the survey, both “drop-off, pick-up” and “drop-off, mail-back” methods were employed. The paper copy survey was distributed at farm field days, Grant County Dairy Breakfast, county fairs, and various community events. The online survey was distributed using Qualtrics software. By dropping off the survey for potential respondents, we developed relationships that aided in gathering completed surveys. The objective of dropping off surveys face-to-face was to gain trust by forging connections with prospective study participants. Increasing in-person contact by dropping off surveys has been shown to improve response rates [80]. Multiple strategies were employed when dropping off surveys. Distributing surveys at these in-person events produced limited success. Following up on the events, the lead author used a local farm as a base camp during 20–27 July 2021. He distributed surveys in conjunction with a pre-paid mail-back envelope to be used for returning the survey. Over these seven days, the lead author targeted various formal and informal social events and work functions in these communities. Being introduced by a local contact that was trusted within these communities proved to be instrumental in reducing anxiety about an outside researcher. In turn, this led to the completion of the questionnaire.

The set of sampling frames was well-suited to provide meaningful insights pertaining to the farming populations in these respective counties because the selection processes specifically targeted farmers, and the respondent characteristics are representative of the agricultural census on important indicators. When the survey sample is compared to the U.S. agricultural census data [50,51], farmers who responded share some similarities in their profile to the overall farmer population in these counties (Table 3). For instance, the age and gender distribution of the survey participants are similar to the overall population. When considering land use and farm size, if there is a bias, our sample is over-representative of the large row crop farming operations that this manuscript problematizes.

Table 3. Comparing the Sample with Farmer Population.

	Sample (n = 82)	Agricultural Census for Grant County (N = 4398)	Agricultural Census for Jo Daviess County (N = 1525)
Farm Size #	23% large 15% medium 62% small	3% large 7% medium 90% small	6% large 8% medium 85% small
Land Use	83% cropland 11% pasture 4% woodlands	63% cropland 17% pasture 16% woodland	70% cropland 14% pasture 12% woodland
Age of Farmer *	10% young 55% middle-aged 35% older	11% young 63% middle-aged 25% older	8% young 58% middle-aged 34% older
Gender of Farmer	73% Male 27% Female	65% Male 35% Female	71% Male 29% Female

Census Data (USDA, 2017 [14]): # large farms over 1000 acres, medium farms 999–500 acres, small farms 499–1 acres; * young farmers under 35 years old, middle-aged farmers 35–64 years old, older farmers 65 years and older.

3.7. ANOVA of Survey Items on Farming Practices

The survey analysis examined the second research question about the importance of each farm area when demonstrating and assessing good farming practices. The survey indicated the relative importance of demonstrating and assessing good farming based on three areas of a farm: (1) crop area, (2) buffer area, and (3) living area. The importance of these three areas was compared using a one-way analysis of variance (ANOVA) on the factors representing each area.

We examined the mean difference between demonstrating and assessing good farming using a within-subject ANOVA. The within-subject analysis examines intra-individual differences; the mean scores for demonstrating good farming are compared with the mean score for assessing good farming. Within-subject designs are ideally suited for small data sets; they bolster statistical power by allowing respondents to function as if they were their own control group [81].

4. Results

The results from the thematic analysis examine the extent to which a regional landscape has relational influences on site-based farming practices. While farming decisions can seem independent, the uniformity of the Midwestern agricultural landscape would suggest some level of social agreement. The data collection process and analysis explored possibilities related to a social agreement about farming practices. From the thematic analysis, two recurring themes are identified: road farming and land-based learning. The quotes provided illustrate these two recurrent themes that reflect how socially agreed-upon standard farming practices shape the realm of possibilities for their farms. With a shift in normative farming practices at a regional scale, there would be a change in expectations for what is considered conventional in terms of farm practices. The quotes *illustrate but are not exhaustive* of the repeated themes of road farming and land-based learning.

4.1. Road Farming as Communication

Farmers with whom we interacted coined the term “road farming” to describe the visual conveyance and interpretation of meaning through the physical conditions of farmland. Road farming occurs when farmers manage land, knowing their neighbors will drive past their farmland and visually evaluate their farm and themselves based on the biophysical conditions. In the literature, road farming is kindred to concepts such as landscape performance [10] and cues to care [22], in which landscape features—whether intended or not—convey social meaning to others. Findings suggest that site-based agricultural decisions are driven by regional place meanings that define how an ideal farm should look. The visual appearance of agricultural land conveys place meanings across spatial scales. To be seen as a good farmer, there is a need to maintain agricultural land in a way that conforms aesthetically with a regional normative landscape. The pressure to maintain publicly visible agricultural land in a socially prescribed fashion is consistent with Goffman’s “front stage” concept [39]. For example, a Grant County farmer expressed how being on a primary highway around many grain farmers creates pressure to have a perfect stand of corn.

I told my wife the other day . . . We were driving past one of my friend’s house, and I said, “Man, I am glad I don’t farm on this section of (highway) 81 because it is large crop farmer, large crop farmer, you know, and everyone has got the big, shiny equipment and the, you know, the latest planter and whatever. And she said, “Why is that so?” It is just so much pressure to have that perfect stand of corn and everything, you know.

—Interview with Grant County Farmer

This Grant County farmer’s quote illustrates how site-based farming decisions are interpreted at a regional scale. Farmers are aware that their fields convey a broader message interpreted by those driving past their land in combination with and comparison to neighboring land. In the quote, the farmer implies a relational influence between normative regional landscapes and site-based farming practices. Farmers interpret place meanings of what an ideal farm looks like; the Grant County farmer suggests that the ideal farm has new equipment and the perfect stand of corn. Under current place meanings, site-based actions that work toward growing an even stand of corn and new equipment conform to the regionally defined notion of an ideal farm. Conscious of their social standing, farmers took on added financial and labor costs to shape their site in a way that aligns with broader regional place meanings. An example of this additional cost was discussed in

the Grant County focus group when farmers explained why they till more land than what is necessary:

Farmer 1: *If you have got a good planter, whether it is corn or beans, you do not need to do tillage.*

Researcher: *Why do they (farmers) want to till it (the land)?*

Farmer 1: *It looks nice.*

Farmer 2: *They want that ideal picket-row fence stand of corn, or whatever crop it is you know.*

—Focus Group with Grant County Farmers

The quote illustrates how, in certain instances, farmers take on added work so a visual assessment of their fields aligns with the regional aesthetic of the idealized farm. The additional tillage costs farmers time, fuel, and wear-and-tear on equipment. These actions suggest that the need to conform to a broader normative agrarian landscape is worth the extra financial cost. While it is possible to improve one's social standing through quality field maintenance, an agrarian landscape in poor condition could also hurt one's social status around the region. Failure to maintain soil health and limit erosion was regarded as bad farming. In Jo Daviess County, mounting frustration with a neighbor is illustrative of a theme that substandard farming practices reflect poorly on a land manager and, more broadly, on farmers as a whole:

There's a farmer not too far from here that I struggle with what happens there. The last couple years, we've had to clean the ditches out of mud. He's stuck in his ways, and he hasn't changed a thing... that's [the soil] your most important investment, and you're not protecting it, you're not taking care of it. I don't understand it... I just cringe when I drive by. I can't believe you can just let that happen... The people who drive by and see it and are aware of it, it gives all us farmers a bad reputation.

—Interview with Jo Daviess County Farmer

Seeing the erosion from the roadway leads the Jo Daviess County Farmer to view his neighbor negatively. The Jo Daviess County farmer also implies a level of interconnection amongst farmers. When one farmer-managed land poorly, it reflects negatively on all farmers. To have standing in an agricultural community, demonstrating you are a “good farmer” is important. To demonstrate good farming, one needs to be aware of the regional farming identity and then align with that normative standard on the site one maintains.

Acknowledging the need to maintain an agricultural landscape in a particular fashion presents a challenge for implementing conservation-style farming practices. When farmers adopt new approaches with conservation in mind, it often makes their farms look aesthetically different [13]. Farmers expressed that shifting to innovative conservation farming strategies violated regionally normative landscape identities. In Jo Daviess County, planting cover crops in October and November raised many questions from neighbors. For example,

I think a lot of people think I'm a little odd, what I'm doing... “What's this guy doing when he's hooked onto his corn planter in October and November.” I plant cover crops with that. 15-inch rows... It's pretty private up in this area; there isn't a whole lotta people that ask a whole lotta questions. I get more questions about the corn planter than anything else. “What the heck's the matter with him? What's he doing out there in the corn planter in November?”

—Interview with Jo Daviess County Farmer

The farmer makes clear that his neighbors think he is abnormal for using his corn planter in October and November. The quote implies that the conservation practice of planting cover crops violates what is seen as “in place”. Given the extent of visibility of conservation practices, it would be reasonable to expect social sanctions for farmers who adopt them.

4.2. Land-Based Learning to Foster Dialogue

The importance of corn production in the United States is not only reproduced by policy and economic incentives [82] but is also socially ingrained. Monoculture row crops are planted yearly, reinforcing the idea of row crops as being “in place”. A Jo Daviess County farmer acknowledged that although more livestock and perennial grasslands are needed on the landscape, he plants corn; it is simply “what you do”.

Why do we do that (plant corn)? Why do you drive here instead of walk here? It's what you do. It's faster; it's more income. You can do a tremendous amount of things with corn. . . Livestock, nothing wrong with livestock. We need more livestock. We also need more perennial lands, but it's the idea.

—Interview with Jo Daviess County Farmer

Over the years, corn and soybean rotations have become synonymous with Midwestern agriculture. Farmers and community members see a majority of acres planted into these row crops every spring. Those coordinated, site-based actions convey a message from which people learn that planting and harvesting corn and soybeans are part of their regional identity. The normalization of monoculture row crop planting is only further entrenched by farm bill policies and market signals that reinforce these normative behaviors [83]. The place meanings surrounding these rotations have become so entrenched that few people even stop to wonder why we farm in this manner. The last sentence in the above quote reflects a farmer who cares about growing more than corn and soybean, but a broader social shift is still needed to help in the transition. Implementing a more diverse agricultural system will require disruption in commonly accepted agrarian practices [13].

Grassroots efforts could serve as a platform for breaking up normative landscapes that perpetuate a corn and soybean monopoly. On the ground, farmers have assessed the current agricultural systems' outcomes and built networks to learn from one another. Farmer-led field days and pasture walks are two types of land-based learning that have grown in popularity. Typically, these events are in coordination with a watershed group or other local organization. These events are important because they can shift what is seen as normative farming practices.

I would rather see farmers get together and say, “What can we do to improve our sustainable type practices in this county?” . . . One of the best things I've been at are pasture walks which we have periodically. . . this is a group of farmers who feel the same way; they're kind of innovators as far as, “We've tried to do this, and here's how it worked.

—Interview with Grant County Farmer

Land-based learning serves multiple functions. When the farmers expressed what works for them, which is that localized knowledge coming from a trusted messenger can better inform decisions for another agricultural operation, such logic is consistent with knowledge cultivation theory [84]. Knowledge cultivation theory highlights that meaningful relationships are needed for people to act on the information that they receive from another actor. Less obvious was that farmer-led field days and pasture walks created a space for social processes that normalized innovative farming practices. These collective efforts redefine what it means to be a good farmer on a regional scale. As progressive practices become normalized through events such as pasture walks, it becomes increasingly acceptable for farmers to adopt those practices at their sites due to events such as “pasture walks” that provide an interpretative lens for farmers to frame their evaluation of the seemingly novel landscape conditions.

4.3. Survey Results

From the qualitative findings, it was evident that regional place meanings about the normative landscape had influenced site-based farming decisions. Often farmers wanted to maintain their land in a way that aligned with what was socially inscribed as “good farming practices”. Building on the qualitative findings, we surveyed participants to see

if a specific area of their farm was more important than others for demonstrating good farming practices. The results from an ANOVA indicated that crop area was seen as being significantly more important than living or buffer areas for demonstrating good farming practices ($F(2,181) = 12.74, p < 0.001$). The finding provides empirical evidence that not all farm areas are seen as equally important when trying to demonstrate that you are a good farmer to your neighbors (Table 4). The significant difference between crop area living and buffer area provides evidence of a social agreement regarding what aspect of a farm is important to evaluate and maintain. That social agreement of what makes an ideal farm highlights a connection between regional place meanings and site-based farm management.

Table 4. Means for Demonstrating Good Farming Practices.

Farm Area	M (SD) $\pm$ SE
Crop Area	4.03 (0.51) $\pm$ 0.06 ^a
Living Area	3.82 (0.57) $\pm$ 0.08 ^b
Buffer Area	3.53 (0.64) $\pm$ 0.08 ^b

Measured on a five-point response scale from 1 = strongly disagree to 5 = strongly agree. ^{a,b} Denotes statistical difference in mean scores $p < 0.001$. $n = 82$.

Building on the results related to demonstrating good farming, we examined whether there was a within-subject difference in how farmers demonstrate (on their own farmland) versus assess (on the land of other farmers) good farming. It would be reasonable to expect that a within-subject contrast between demonstrating vs. assessing good farming would not be significantly different. Simply put, the degree to which good farming is demonstrated would be equal to how it is assessed.

Three within-subject ANOVAs compared demonstrating versus assessing good farming for the crop, living, and buffer areas (Table 5). For the crop area, there was no statistically significant difference in the ways that farmers demonstrate versus assess good farming. For the living area, results indicated that demonstrating was more critical than assessing at a statistically significant level. Then, finally, for buffer areas, results indicated that assessing was considered more important than demonstrating at a statistically significant level.

Table 5. Demonstrating versus Assessing Good Farming.

Demonstrate Versus Assessing	Comparison	Within—Subject Mean Differential [#]
Crop Area—Demonstrating versus Assessing	$F(1,57) = 0.05, p = 0.825$	0.02
Living Area—Demonstrating versus Assessing	$F(1,51) = 11.10, p = 0.002$ *	0.34
Buffer Area—Demonstrating versus Assessing	$F(1,59) = 16.94, p < 0.001$ *	−0.27

Measured on a five-point scale from 1 = strongly disagree to 5 = strongly agree. * Statistical significance $p \leq 0.01$. [#] (demonstrating score—assessing score = within subject differential)/ n . $n = 82$.

Study findings support that normative landscapes have relational influences on site-based farming practices. From the themes of road farming as communication and land-based learning to foster dialogue, it was indicated that having up-to-date equipment and growing even rows of corn and soybean align with current place meanings dominant across the Driftless Region. Building on the thematic analysis from the survey data, we compared the differences in how farmers demonstrate versus assess good farming. In that analysis, we divided a farm into three areas: crop, living, and buffer area. The statistical analysis suggests that inter-subjective agreement pertaining to ideal farming practices is strongest in crop areas.

5. Discussion

Recent writing has called upon researchers to consider the context in which farmers make land use decisions [13,35]. Using a place-based approach, we identified how the performative characteristics of farm management allow farmers to engage in the expression

and interpretation of regional identities. The findings suggest that the connections that Morse and colleagues [10] found between regional identities and site-based management in New England have applicability in the Driftless Area of the north-central United States. These results provide additional empirical support for the need to consider relational influences on site-based farm management decisions [85].

5.1. Effects of Regional Landscape on Site-Based Farming Practices

We found that site-based farming activities have a role in shaping normative place meanings in the Driftless Region. Conversely, the identified themes also suggest that site-based farming practices are shaped by normative landscapes, which highlights the bi-directionality of relationships where sites influence regions and regions influence sites. A primary takeaway is that agrarian land use decisions are influenced by socially developed meanings rather than being an assemblage of decisions made by farmers thinking and acting independently or as economically rational actors. Farmers are aware that the way they manage land is being assessed by neighbors. The rubric on which farmers are evaluated is centered on a regional identity of what it means to be a good farmer. This evaluation phenomenon was most clearly illustrated in the theme of road farming as communication. In other words, this study complements a general implication from agricultural conservation research that frames the problem as rooted in the psychology of farmer decision-making [86,87], whereas our findings focus on a regional sense of place that needs disruption with solutions rooted in the social norms of agricultural communities. The findings related to research question one provide empirical evidence of a relational influence on individual farms, a phenomenon that has been largely detailed in European and Australian studies [13,35,38,85,88]. Being aware of the farmer-to-farmer relational influence on Driftless Region farms could offer insights into ways to induce transformational pro-environmental farming practices [13].

Farmers we interacted with displayed an awareness of using an idealized image of a farm to evaluate themselves and others' performances as a farmer. For instance, the maintenance of even straight rows of corn was seen as a strong performance of Driftless Region farming practices, while having well-managed pastures was viewed as being disruptive to the normalized ideal. As a Jo Daviess County farmer explained, growing corn "it's what you do". These inter-subjectively agreed-upon farming practices are often portrayed as being "conventional" [89] and have become so entrenched that most farmers, researchers, and organizations seem oblivious to their role as the authors of this normative standard of agriculture. Based on the findings, facilitating landscape change at a site-based level disrupts inter-subjectively agreed-upon landscape practices developed at a regional scale—a finding consistent with the relational influences that Gosnell and colleagues [13] found in Australia. To overcome the social sanction accompanied by not complying with the dominant agricultural paradigm, Gosnell and colleagues [13] state the need to develop social networks to support a novel definition of "good farming". Our study suggests that similar social support systems that redefine good farming are needed in the United States and are typically operationalized in the activities of watershed groups, Learning Hubs, and Landlabs [90].

5.2. Areas of a Farm for Demonstrating and Assessing Good Farming

The initial findings connected the actions of farmers with broader regional identities. The second research question examines the intentions of farmers to demonstrate, as well as to assess, the areas of a farm that signify a good farmer. The findings indicate that the way farmers try to demonstrate versus assess good farming does not always match. Only in crop areas was there no statistical difference between how farmers demonstrated and assessed good farming. With a strong inter-subjective agreement on how crop areas should look, farmers feel a strong need to comply with these social norms. The widespread social agreement contributes support for the concept of land-based learning to foster dialogue. Land-based learning would be a direct strategy to engage the problem that planting corn

and soybeans is the only ‘conventional’ option that farmers have for cropping areas. Buffer and living areas are seen as peripheral to crop areas and offer a possible explanation as to why there is more ambiguity pertaining to socially agreed-upon best management practices for these areas. The importance of cropping areas in what it means to be a good farmer may be explained because crop areas are the largest part of a farm and the area where the agricultural product is grown.

The difference of shared meanings across a farm property could offer insights on how to best advance conservation agriculture. Research has emphasized that substantive changes to cropping areas will be needed to improve water quality, enhance biodiversity, and build soil health [4,52,91]. With strong inter-subjective agreement on how cropping areas should be managed, projects that employ a relational approach will be needed to operate across temporal and spatial scales to socially disrupt and redefine “conventional” practices [85]. While people engage in collective action that works toward systemic changes in cropping areas, our findings suggest these groups could realize improvements expeditiously in buffer areas where inter-subjectively agreed-upon meanings are not as intense. Practices in buffer areas, such as prairie strips, improve water quality, provide wildlife habitat, and reduce soil erosion [92]. Our findings suggest that farmers who disrupt normative ideals for buffer areas would likely not feel an intense social pressure to conform compared to if they were to disrupt the normative ideal in cropping areas. Implementing conservation in buffer areas can provide time and social support as society undergoes the necessary but larger process of redefining “conventional” practices for cropping areas.

6. Conclusions

Understanding how farmers perform in line with a Driftless landscape offers insights into ways to disrupt the current “conventional” agricultural system associated with poor water quality [53,93], diminished soil health [3,6,7,94,95], reduced biodiversity [8,96,97], and compromised social outcomes [58,98,99]. With vast sections of land dedicated to agricultural production and a strong social agreement pertaining to good farming, a large-scale shift in normalized farming practices has the potential to produce dramatic improvements in ecological functioning [13]. To the end of examining how inter-subjective agreement influences what it means to be a good farmer, this study advances scholarship by identifying relational influences of normative landscapes on site-based farming practices. Our results suggest that there are strong interconnections between site-based farming practices and collectively shared regional place meanings. A limitation of our findings is that the data were only collected in two adjacent counties in Northwestern Illinois, USA, and Southwestern Wisconsin, USA. Additional studies will need to explore if these findings are supported in other North American locations, especially in the industrialized agricultural landscapes of the north central United States.

Improving ecological functioning to the extent that people realize meaningful changes in their lived experience, such as a reduction in algae blooms in water bodies, will require dramatic but achievable changes [4,100]. It is becoming apparent that attaining an agricultural system that provides clean water, builds soil health, and allows for biodiversity for societal benefits requires a rupture with what is currently socially defined as “good farming”. The findings bolster Reimer and colleagues’ [12] proposition that to facilitate a large-scale transition of agricultural landscapes, there will be a need to focus on the regional context in which farming decisions are made. A potential solution is to provide economic, technical, and social support to place-based collaborative learning networks where numerous perspectives come together with the intention of re-envisioning regional place meanings that inform what it means to be a good farmer [25,101]. Community partnerships around sustainable agriculture, such as Learning Hubs or Landlabs that bring together farmers and agricultural business stakeholders hold the potential to facilitate the collective action needed to shape policy and social changes on a regional scale [90]. To support collective action at a local level, state and national policymakers should be

responsive to regional place-making as a powerful force to re-envision the compatibility of conservation with agriculture.

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