



PASTURE BASED FARMING AND REGIME CHANGE
IN A TRANSITION MANAGEMENT PERSPECTIVE



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Abstract

The exploration of this thesis contributes to the analysis of a sustainable alternative to existing industrial agriculture practices. Pasture based systems, a holistic niche of ecological livestock practices, is examined within the framework of transition theory as defined by Rotmans (2001). The intent is to determine pasture farming's viability, describe the barriers it faces, as well as explore opportunities for transitioning to a new state. Interviews posing a series of qualitative questions were conducted with pasture-based farmers in the United States and Canada. The results were coded into themes and categories and then analyzed under transition theory. The application of transition management to the pasture based paradigm suggests possibilities for a broader understanding and potential for the emergence of a more sustainable food system.

Keywords: pasture-based, transition theory, management, transforming to a new state, emergence, sustainable food system,

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Objective	2
1.2	Scope and Limitations	2
1.3	Thesis Structure	3
2	RESEARCH DESIGN	3
2.1	Ontological and Epistemological Considerations	4
2.2	Interviews	5
2.3	Literature Review	5
3	BACKGROUND	6
3.1	Transition Theory	6
3.1.1	Multi-Level Framework	6
3.1.2	Multi-Phase Perspective	8
3.1.3	Transition Management Theory	8
3.2	Pasture Based Farming	9
4	INTERVIEW RESULTS	10
5	ANALYSIS AND DISCUSSION	11
5.1	Multi-level Analysis	11
5.1.1	Developing a context for the micro, meso and macro levels	11
5.1.1.1	<i>Dependence on the existing regime</i>	12
5.1.2	Limitations within a multi-level framework	13
5.1.2.1	<i>The limited impact a niche can have on the landscape</i>	13
5.1.2.2	<i>How landscape and regime can limit the niche message</i>	14
5.1.2.3	<i>Niche and regime level regulation</i>	15
5.1.2.4	<i>Industrial lock-in and structural ceilings</i>	15
5.1.2.5	<i>The economic limitations of the consumer</i>	17
5.1.3	Opportunities within a multi-level framework	18
5.1.3.1	<i>Industrial regime limitations that lead to niche level opportunities</i>	18
5.1.3.2	<i>Communicating practices, an opportunity to manage limitations</i>	19
5.1.3.3	<i>Pursuing two separate pathways</i>	20
5.2	Multi-phase Analysis	21
5.2.1	Predevelopment	21
5.2.2	Take-off	22
5.2.2.1	<i>Ease of Entry</i>	22
5.2.2.2	<i>New Recruits for a Food Revolution</i>	23
5.2.2.3	<i>Certification and Labeling</i>	25
5.2.2.4	<i>Contrarian Ideal</i>	26
5.2.2.5	<i>Mentorship</i>	27
5.2.3	Acceleration	28
5.2.3.1	<i>Consumer Accountability</i>	28

5.2.3.2	<i>Reaction of Industrial Agriculture</i>	29
5.2.3.3	<i>Avoiding an Organic Fate</i>	30
5.2.3.4	<i>Combination of Movements</i>	30
5.2.4	Stabilization.....	31
5.2.4.1	<i>Built-in Resilience</i>	32
5.3	Transition Management.....	32
5.3.1	Establishing Arenas.....	33
5.3.1.1	<i>Emerging without an arena</i>	33
5.3.1.2	<i>Frontrunners</i>	34
5.3.2	Transition Agenda.....	36
5.3.3	Forming New Coalitions.....	37
5.3.3.1	<i>Pennsylvania Association for Sustainable Agriculture</i>	37
5.3.3.2	<i>Modified USDA</i>	38
5.3.4	Supporting the Desired Direction.....	39
5.3.4.1	<i>WIC-ed solutions</i>	39
5.3.5	Monitoring and Re-evaluation.....	40
5.3.5.1	<i>Choice</i>	41
6	CONCLUSIONS AND OBSERVATIONS	42
6.1	Concluding remarks.....	42
6.2	Observations.....	43
6.3	Suggestions for further research.....	43
7	REFERENCES	45
8	APPENDICES	49
	Appendix A – Qualitative questionnaire.....	49
	Appendix B – Objectives behind question design.....	50
	Appendix C – Interview results: themes and categories.....	51

Figures

- Figure 1 - System pathways for a complex adaptive system
Figure 2 - The different scale levels of a transition
Figure 3 - The dynamics of socio-technical change
Figure 4 - The transition management evaluation

Abbreviations

- EU - European Union
MIG - Managed Intensive Grazing
MIRG - Managed Intensive Rotational Grazing
PASA - Pennsylvania Association for Sustainable Agriculture
US - United States
USDA - United States Department of Agriculture
WIC - Women Infants and Children - Nutrition and Supplements Program
WWOOF - World Wide Opportunities on Organic Farms

1 INTRODUCTION

As a global society we stand at a crossroads with regard to our relationship with food and its influence on farming and production. Food sources and the farming practices behind them are issues that have languished in popular discussion for decades, and yet more recently a growing awareness and demand to reestablish our connection with food sources has come to the fore (Salman, 2009, Apr 19, Pollan, 2006b, 2008). The problem extends beyond the social influences and those of nutritional decline (Davis, 2009), into ever-greater pressures on water, topsoil, pollution and encroachment of prime agricultural land. Each of these issues is magnified when the discussion turns to livestock as the impact is often so far reaching (Steinfeld et al., 2006). The need for a managed change in practices has reached a critical level, and its success could very well determine the welfare of future generations.

To direct this transformation, we consider transition management theory, a framework for understanding and inspiring change within a complex adaptive social system. For it is only through gaining an understanding of opportunities, limitations and the conditions of the system that it is possible to influence its effect (Rotmans, 2009). While much work has been done on the application of Transition theory to technical and social technical systems (cf. Kemp et al., 2001, Geels, 2002) the focus here is a case study in sustainable agriculture. The expectation is that we can avoid the worst of our unsustainable practices by applying transition theory to aid a niche with a promising future.

This future may already exist in pasture-based farming, a niche of solutions around sustainable livestock practices, local communities, and control over our food sources. It has increasingly been receiving attention in the popular media and from consumers pursuing alternatives to industrial food production. (Pollan, 2006a) Its popularity is aided by tapping into our bucolic image of what farming should be: animals raised outdoors, fed a grass diet and treated in a humane manner. Pasture-based farming has drawn many of its new practitioners from a multitude of fields and vocations that desire to be at the core of this movement of practices and shift in perspectives.

But how can this movement in agricultural sustainability emerge into a societal-influencing paradigm? Will the existing relationships and practices in the established food system fit and allow for a shift in practices? Finally, is the future of our food industry and its farmers to be one of revolution or reform, for better or worse?

1.1 Objective

This thesis will analyze the emergence of pasture based farming in North America as a movement of sustainable agriculture within the context of Transition Theory as defined by Rotmans (2005). The findings will determine its viability, describe impediments, and explore the opportunities for moving to a new state using the following research questions:

1. How do the actors and interests around pasture based farming affect each other, and what limitations or opportunities do the connections provide?
2. What needs to occur for pasture based farming to successfully emerge from its current niche, to become the dominant agricultural paradigm?
3. How might the evolution of this movement to a larger one, be influenced by transition management.

1.2 Scope and Limitations

At the time of writing, the author is unaware of any case studies or research that has focused on pasture based farming in the United States and Canada within a transition theory context. This paper therefore represents an attempt to act as a compass for pasture based farmers, proponents and stakeholders who wish to build on the analysis and results from this thesis. The paper consists of two foci that it attempts to intertwine: a set of interviews with pasture farming practitioners, and the application of transition theory as well as transition management.

While the interviews and application of transition theory have been narrowed down to pasture-based practitioners, the scope of their activities and relationships with other actors under analysis has where appropriate remained broad, so as to gain perspective of

the food production system. Despite this broad consideration the analysis focuses on specific points and issues of relevance within transition theory. The focus is on functioning farmers in North America, influenced in part by the recent media attention and the language limitations of the interviewer. Consumers, processing facilities and industrial scale practitioners are not a part of the analysis for this paper.

Caution was taken to remain objective; however, it is likely, as in any qualitative analysis that some objectivity and bias have entered into the general process (Bryman, 2004). Finally, due to the nature of the subject being a complex adaptive system, and having the potential to take on too many tasks or a “kitchen sink gambit” (Silverman, 2005: 80-82), it has been key to balance a need for focused examination while allowing for exploration of unforeseen or alternative theory.

1.3 Thesis Structure

Section two of the thesis describes the research design, the interview process and some of the literature adopted by the paper. Section three consists of a background exploration first regarding transition theory in a multi-level, then a multi-phase and finally a management perspective, followed by a deeper look into pasture-based farming. Section four briefly explores the framework and results from the interviews and the categorization of their results. Section five consists of analysis and discussion of the case study and the interviews under the three tools of transition theory each addressing a research question: multi-level a look at the actors and their interactions, multi-phase which explores emergence and the path of transition, and transition management where and how the system can be influenced. A summary in section six provides concluding remarks, observations and suggestions for further research.

2 RESEARCH DESIGN

The research design is of a qualitative focus, with the intent to discover the challenges and success of an early stage agricultural movement. This paper works under the assumption that “the social world must be interpreted from the perspective of the people

being studied, rather than as though those subjects were incapable of their own reflections on the social world” (Bryman, 2004: 279). A qualitative, open-ended approach has allowed for flexibility and restructuring when it was necessary or appropriate during the interview process.

Structuring the research design as a case study adheres to the requirement that “a “how” or “why” question is being asked about a contemporary set of events, over which the investigator has little or no control” (Yin, 2003: 9). It is the unclear interaction of the pasture-based farming actors with each other and the conventional food system, which supports that “the boundaries between phenomenon and context are not clearly evident” (Yin, 2003: 13). While pasture based farming has experienced some measure of media attention, the social system analysis is at an early stage and so it has acted perhaps not as a revelatory case subject (Yin, 1984: 44) but possibly as an exemplifying one (Bryman, 2004: 51).

2.1 Ontological and Epistemological Considerations

The ontological method taken is a constructionism approach, where “the social phenomena and their meanings are continually being accomplished by social actors” (Bryman, 2004: 17). This frames a notion of farming activities and movements within agriculture, which are determined by its social actors, (farmers, buyers, consumers etc.) in combination with speculation about how these social actors respond to a changing food system (industrialization, environmental impact, etc.).

The epistemological approach of interpretivism “which requires a different logic of research procedure, one that reflects the distinctiveness of humans against the natural order” (Bryman, 2004: 13), seems appropriate in how it relates to farming, livestock management and the balance/conflict with relation to the surrounding environment.

2.2 Interviews

The main method for data collection was through semi-structured interviews. The farmers selected for interviews were principally found via Eatwild.com;¹ they were selected randomly from states and provinces both on the east and west coast. From 54 email requests for interviews, eight practitioners participated via telephone and online video to answer a set of qualitative questions (Appendix A). Interviews lasted from 40 minutes to just over an hour based on the interviewee, the amount of information, and energy they had to discuss the various topics. The questions featured several neutral questions in hopes of establishing a rapport from which the conversation could delve into less appealing issues and challenges. The energy level of the participants was consistently high resulting in engaging discussion, and passionate responses. Following a grounded theory approach (Glaser & Strauss, 1967), upon transcribing notes from the interviews, the results were examined for themes, and these themes were subsequently broken down into categories (Appendix C). Unfortunately, the timing for the interview process coincided with the beginning of spring, potentially the busiest time of year for the subjects and certainly played a role in who was willing, and able to participate.

2.3 Literature Review

A literature review was used in the study, and supplied a diverse set of perspectives towards understanding the background of Transition Theory and its effect on complex adaptive systems. The central concept of transition tools and management theory come primarily from Rotmans work, but is supported and applied by such social scientists as Geels & van der Brugge who have also contributed significantly to existing transition findings. Focusing on the more popular articles has offered a current and consensus view as to how we might apply theory and conceptualize the transition of complex systems.

¹ Eatwild.com acts as a source of information for the benefits of raising animals on pasture, as well as a market place and links to local farmers.

3 BACKGROUND

3.1 Transition Theory

Transition theory is a methodology and set of tools that has developed with the desire to influence persistent problems that occur in our complex socio-technical systems. These persistent problems are often created as result of system failures that emerge in our societal systems that can generally not be controlled or solved by existing policies. These flaws or “Wicked Problems” (Rittel & Weber, 1973) are multifaceted, embedded, contain significant uncertainty, and involve numerous actors of diverse interests (Dirven et al., 2002). Resolution requires system-oriented solutions in order to transition through an effective restructuring process (Rotmans et al. 2001; Rotmans, 2005). Having control or power over a system is neither the objective nor necessarily desired from a transition theory perspective; instead, through a systems approach we attempt to fathom the prospects for influencing societal complexity (Rotmans, 2009).

The application of transition theory manifests itself into three “tools of analysis”: a multi-level framework (3.1.1), a multi-phase perspective (3.1.2), and transition management (3.1.3).

3.1.1 Multi-Level Framework

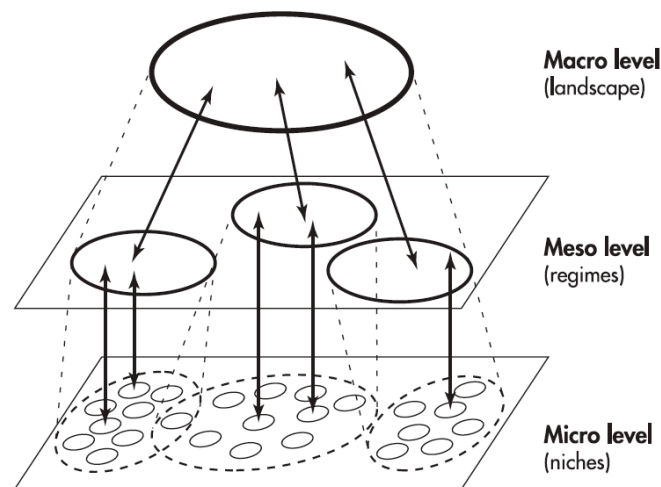


Fig. 1. The different scale levels of a transition. From the micro level niches emerge and succeed or fail to reach the regime level depending on the conditions of the current regime and general landscape (Geels &

Kemp, 2000, Rotmans, 2005).

The multi-level framework (Fig 1) consists of the niche (micro), regime (meso) and landscape (macro) levels (Rip & Kemp, 1998). The relationships between the levels can be understood as a nested hierarchy, with the *landscape* level acting as a peripheral structure or context for the interactions of regimes and niches. Regimes are the rules and organizations that facilitate and constrain activities within communities with a general desire to maintain the status quo (Geels, 2002). Well established regimes which have developed “deep structure” become the “incumbent regime: a conglomerate of structure (institutional and physical setting), culture (prevailing perspective), and practices (rules, routines, and habits)” (Rotmans, 2009). At the micro level exist niches that can demonstrate non-conformism and develop new practices, enterprises as well as new forms of culture and management (Rotmans, 2005).

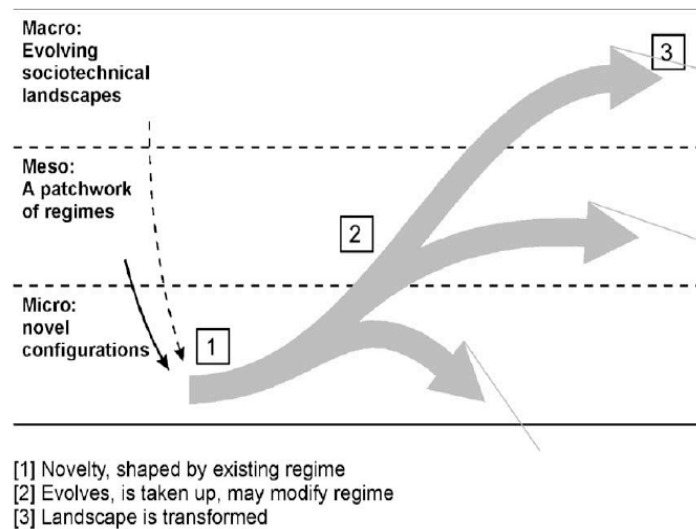


Fig. 3. The dynamics of socio-technical change. Depicted is a hybrid of sorts combining elements of the multi-level with the multi-phase perspective (Rip & Kemp, 1996; Kemp et al., 2001).

It is important to note how crucial the niche level is towards acting as the starting point for change (Fig 3). The multi-level structure reveals how initiative success is not only determined from within the niche but also from the established regime and socio-technical landscape (Geels, 2002). For transition to occur developments must align at multiple levels, and reinforce emergent niche processes (Kemp et al., 2001).

3.1.2 Multi-Phase Perspective

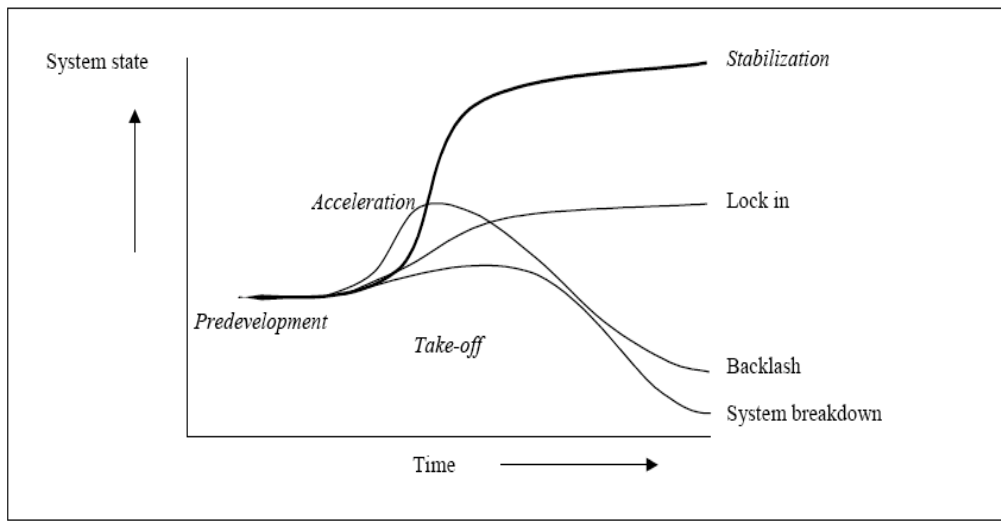


Fig 3. System pathways for a complex adaptive system. With *Stabilization* the desired outcome for an emerging niche, versus other potential pathways (van der Brugge & Haan, 2005).

A multi-phase perspective of a system as depicted (Fig 3), can be described as “alternating phases of relatively fast and slow dynamics, which together form a strongly non-linear pattern where there is a shift from one dynamic state of equilibrium” (Rotmans, 2005) such as *predevelopment*, to another such as *stabilization*.

The transition process consists of four phases (Fig 3); the first, *predevelopment* is a stable state of equilibrium where change is occurring, with little effect on the status quo due to selection pressure within the established regime. The second, *take-off*, is a point of ignition through innovation a structural change is set in motion, and a new regime begins to emerge. The third, *acceleration*, structure changes its organization and change becomes visible. The final phase, *stabilization* represents a new phase of equilibrium and internal optimization of the new regime (van der Brugge, & van Raak, 2007, Rotmans, 2005).

3.1.3 Transition Management Theory

“Transition management is a deliberate attempt to bring about long-term change at a system level” (Rotmans, 2005). Complex societal systems require transition management that can influence the direction and speed of the transition for a societal system, in a

sustainable direction. The motivation of transition management to create change and social movement occurs through the formation of networks, coalitions and arenas, which can grow and evolve to place pressure on incumbent regimes as well as to safeguard the still developing niche (Rotmans, 2009). As inferred previously, transition theory is a practice of “reflexive planning, - not deterministic but reflexive rules” not only “because the conditions and dynamics (content) will change as a result of the application of these rules” (ibid).

3.2 Pasture Based Farming

Ecological sustainability is the foundation and starting point of pasture based management; it encompasses several different practices and ecological methods of raising livestock in as natural conditions as possible and within the carrying capacity of the land. Its application ranges from maximization strategies such as Managed Intensive Grazing (MIG) or Managed Intensive Rotational Grazing (MIRG) to simpler methods.

Pasture based systems typically include a species of ruminant², and a maximization strategy around grass sward³ and soil productivity. The theory ties into permaculture⁴ principles and attempts to capture the benefits of multi-species grazing. Farmer’s work with and within the seasons, calving or lambing in spring just after winter breaks and spring has arrived so as to have the animals on grass as much as possible.

“When properly managed, raising animals on pasture instead of factory farms is a net benefit to the environment. To begin with, a diet of grazed grass requires much less fossil fuel than a feedlot diet of dried corn and soy. On pasture, grazing animals do their own fertilizing and harvesting. The ground is covered with greens all year round, so it does an excellent job of harvesting solar energy and holding on to topsoil

² Ruminant - any mammal of the suborder Ruminantia, which includes, cattle, sheep, and goats. Most ruminants have four-chambered stomachs and a two-toed foot. Ruminants eat quickly, storing masses of grass or foliage in the first chamber of the stomach, the rumen, where it softens. They later regurgitate this material, called cud, and chew it again to further break down its cellulose content, which is difficult to digest. The chewed cud goes directly to the other chambers of the stomach where it is further digested with the aid of various essential microorganisms that live in the stomach. – www.britannica.com

³ Sward – a term used by pasture farmers to refer to the height, and condition of grass

⁴ Permaculture incorporates “Consciously designed landscapes which mimic the patterns and relationships found in nature, while yielding an abundance of food, fiber and energy for provision of local needs. People, their buildings and the ways they organize themselves are central to permaculture. Thus the permaculture vision of permanent (sustainable) agriculture has evolved into one of permanent (sustainable) culture.” – (Holmgren, 2009)

and moisture, grazed pasture removes carbon dioxide from the atmosphere more effectively than any land use, including forestland and un-grazed prairie, helping to slow global warming” (Eatwild.com, 2009).

A commonly practiced holistic management method in pasture-based farms is that of rotational grazing combined with “chicken tractors”. Cattle are penned into paddocks with portable electric fencing large enough to provide grass for one to three days (depending on practitioner and time of year). Behind the cattle rotations come chicken tractors, whose area is surrounded by portable electric netting. The delay is generally three days; long enough to allow some maturity in the larvae growing in the manure but not enough that they reach fly stage. The chickens eagerly scratch through searching for the larvae and as a result spread the manure (stimulating nutrient cycling), consequently accessing their preferred food source while acting as biological sanitizers for the cattle (Salatin, 1996).

Pasture farming is in part a reaction to the unsustainable practices of industrial agriculture and has resulted in a movement based on holistic approaches to animal husbandry. Pasture based farming incorporated the observation of animals in nature and then attempts to re-create them in a farm setting. In addition to its environmental considerations, pasture based farming is rooted in an emphasis on local communities and inputs.

What pasture farming is not, is simply a return to pre-industrial practices, as it attempts to incorporate appropriate technology at reasonable scale with an emphasis for animal and farmer welfare. What it is: is a confluence of ideologies and social movements around food and food production, breaking away from industrialization and moving towards community and sustainable food sources.

4 INTERVIEW RESULTS

This section discusses the motivations and results from the qualitative interviews with eight pasture based farmers in March and April of 2009. Analysis of these themes and categories with relation to transition theory takes place under analysis and discussion.

The questions asked (Appendix A) ranged in subject topic, whose broad focus was to primary objectives (Appendix B) were to understand the challenges and success' practitioners face at an individual level.

The results of the answers were coded and broken down into themes and subsequently categories (Appendix C) to highlight relevant issues and trends. The most significant of these categories were then related back to transition theory; in order to create a framework of analysis for pasture based farming through the experiences and perspectives of its practitioners.

5 ANALYSIS AND DISCUSSION

The analysis is based on the research questions; they in turn reflect Rothman's (2005), three analytical concepts to understand the patterns and possibilities for a transition to pasture based practices. The key actors at the niche level are the pasture based farmers; industrial agriculture at the regime level, and the landscape level reflects the current beliefs around and requirements from our food system.

5.1 Multi-level Analysis

The analysis begins by exploring the actors and agents within the pasture based farming system, and the levels at which they interact. These connections and relationships found amongst the multi-level interaction are relevant in how they can hinder or support a transition of the pasture-based paradigm. The multi-level analysis of the case study is divided into three sections: developing a context for the micro, meso and macro levels, limitations within a multi-level framework, and opportunities within the multi-level framework. Each section examines how different existing and developing connections provide either a limitation or opportunity to the emergence of pasture based farming.

5.1.1 Developing a context for the micro, meso and macro levels

Using a top down approach, at the macro or socio-technical level exist elements such as

political culture, social values and the natural environment. The second meso or regime level consists of prevailing practices, policy and common assumptions. The final and third micro or niche level consists of consumers, farmers and generally “relates to individual actors, technologies and local practices” (Rotmans et al. 2001).

How these levels affect each other is of primary importance if we are to consider and project future change. Pasture based farming currently exists at a niche level within the North American food system and with respect to the regime that is industrial farming. This David and Goliath relationship is important; as Rotmans (2001) explains it is “often in the early period of a socio-technical transition that the regime acts as an inhibiting factor”. The existing industrial agricultural regime has the advantage of scale, efficiencies and policy, which create ease of access, and artificially low prices, which consumers have over time been “trained” to believe is fair value. This indirect training of consumers repeats itself often in the interview process and is a limitation that pasture-based farmers work diligently to unravel (Pollan, 2006a, 2008).

The following sub section explores a deeper perspective of the underlying dependency pasture based practices have on the existing regime.

5.1.1.1 Dependence on the existing regime

Despite the greater part of the participants demonstrating anti-industrial agriculture beliefs and values two of the participants acknowledged that “its only when consumers say, “I don't want that”, that they're willing to be inconvenienced and go to a farmers market” (Interviewee 3). This represents a connection from the consumer but also for the pasture farmer that without the industrial agricultural regime there would be no place for the niche they represent. The connection, even dependency on the regime for some farmers was very different from others who believed pasture practices were the future and could exist with or without existing regimes. The limitation of different fundamental ideologies of the relationships and possibilities of the pasture niche is important to its future development. It may represent a beaten down optimism that having come from the

regime is not entirely surprising. It may also reflect a reality and limitation that would benefit from a series of quantitative modeling to answer properly.

If this dependency for existence on the regime was unexpected, reflection reveals a logical relationship. It creates a framework that the pasture based niche exists principally as an alternative, and only so long as the existing regime continues to create a product that does not meet the expectation of some consumers. While only time can bear out a final answer, the argument of this paper is that pasture based practices hold a greater resilience, and brighter future, than one, which relies on an unsustainable and therefore fundamentally flawed regime.

5.1.2 Limitations within a multi-level framework

The following explores relationships between the niche of pasture farming, associated regimes and landscape and the limitations that hinder the existence of pasture farming along with its emergence within a multi-level framework. The five subsequent sections consist of the limited impact a niche can have on the landscape, how landscape and regime can limit the niche message, niche and regime level regulation, industrial lock-in and structural ceilings, and limitations of premium products and direct marketing.

5.1.2.1 The limited impact a niche can have on the landscape

The level of effort that the interviewees place in marketing, brand establishment and education of consumers was in several cases equal to or greater than their farming activities, as one interview revealed “we spend a lot of energy creating the market and getting the product to market” (Interviewee 4). The focus for attracting local customers (niche level agents) as well as educating the masses (macro level landscape) falls into two very different strategies and outcomes if we apply a multi-level transition framework.

While niche level activity can act as a catalyst to break out and into a regime status, the political culture and social values that make up the landscape level respond to slow trends and are for the most part unyielding, representing a limitation in attempts to affect it to a

discernible effect (Rotmans, 2001). Efforts aimed at sending out the message of pasture based farming need to be analyzed for their effectiveness so as not to go unheard on unchanging macro level elements and perspectives.

Alternatively, with a focused concentration on existing opportunities at the niche level, farmers can attract local consumers, through establishing a direct sales approach, which circumvents the more established regime and existing wholesale infrastructure. On-farm sales and scheduled weekly or monthly drop offs abandon large buyers, distributors, supermarkets, and even farmers markets. This abandonment of the regime to focus on inter-niche relationships and the success they have enjoyed will prove a more effective catalyst to affecting the landscape than the aforementioned education on the macro level.

5.1.2.2 How landscape and regime can limit the niche message

Delving further into the challenges faced by participants in acting as educators for the general public is the complexity of disentangling fact from fiction. While certain concentrated feed operations do violate animal rights, and certainly operate in far from ideal conditions, (Gurian-Sherman, 2008) it is unlikely that the majority represent the worst cases, which the Internet and news tend to sensationalize. It is this sensationalizing and exaggerating of truth may seem to create opportunity when really it could easily undermine the reputation and credibility of its messenger (Heinrich, 2005, Dec 07).

Having taught in an agricultural department one of the interviewee's encountered resistance in bringing sustainability to the curriculum. As stated in an interview: "their interpretation was if what you're doing is sustainable then what we're doing is not sustainable." (Interviewee 6) It demonstrates how existing education can act as a major contributor to path dependence, in this case, the existing regime (Geels, 2004).

While the reality of pasture-based practices is overwhelmingly positive, the delivery and form of the message, is often as varied as the landscape and beliefs of the farmers that work them. Even as the diversity and resiliency of the movement's participants are generally strengths, with regard to a uniform message they present a challenging hurdle.

5.1.2.3 *Niche and regime level regulation*

Perhaps the strongest negative relationship in the multi-level perspective is that between regulatory agencies and the restrictions they impose not only on pasture farmers but also on the support system they depend on, such as smaller processors. Currently there exists a one size fits all mentality, which benefits the largest producers producing the majority of goods, at the expense of new models emerging from the niche level with smaller, and often unique needs.

“For me the one size regulatory system has got to change, for the first time ever small farms like mine are on the rise and large farms are on the rise, so that is a very different picture, two different styles of production, maybe we need two different kinds of regulatory system, a continuation of this one size fits all would ultimately reverse the growth trend among small farms,” (Interviewee 6)

The system of interdependence that the USDA and industrial scale agriculture regimes have created over time manifests itself in a “stability (that) is often formalized in compatibility standards” (Geels, 2004). The absence of local processing facilities was the most quoted example by the producers as evident in the statement “the recent rebirth in direct marketing has realized the limitations in facilities” (Interviewee 6).

A potential solution has been the formation of farmer networks organized around scheduling and representing multiple clients to one larger processing facility. Future plans include the possibility of purchasing or building a small processor to serve the smaller more seasonal pasture farmer needs (Interviewee 6). While solutions like these can ease the unsympathetic structure within which these farmers operate the seasonal nature of farming and even livestock production highlights the awkward compatibility of our fast food society and the reality of working in greater harmony with the natural systems.

5.1.2.4 *Industrial lock-in and structural ceilings*

A significant hindrance that exists for pasture based farmers to transition out of niche status is industrial agriculture’s close ties and affiliation with the administrative regime

such as the United States Department of Agriculture (USDA) and the resulting (unintentional) glass ceiling to the emergence of new regimes.

The idea of a techno-institutional complex such as big agriculture and the USDA locking out “the development of new technologies, particularly more sustainable technologies, which have high unit costs and are yet to benefit from scale economies, learning effects, adaptive expectations and network effects” (Foxon, 2002) is not unique to pasture farming. The barrier this represents was a significant concern of the practitioners interviewed, in that the regulatory agencies suffer from “capture by the industry that it is supposed to regulate, so that instead of properly regulating that industry (the USDA) ends up serving (industrial agricultures) interests.” (Interviewee 1) So-called capture is further reinforced from “an incestuous relationship between industry and the agency (industry people become agency people, agency people become industry people, etc.), and access (minority and/or non-industry viewpoints are not heard by agency personnel)”. (Interviewee 1) This effectively creates regime level collusion, allowing little opportunity to *unlock* established norms and restrictive policy that prevent new niches from surfacing.

These relationships result in a USDA that “has an industrial mindset, and is scaled and organized to deal only with industrial systems” (Interviewee 1). Creating regimes “that for the most part geared towards optimizing rather than transforming systems” (Rotmans et al. 2001).

Typically a sector such as industrial agriculture could improve its existing practices through technological development and use strategic action to fight off a new threat (ibid.), however, with respect to pasture based farming, this would only further differentiate the practices and products versus bringing them closer to competition. Pasture based farming finds its strengths in moving away from the techno centric regime and so exists at a level, which industrial agriculture will find very difficult to compete with.

A final argument that supports the glass ceiling theory comes from agricultural institutions instilling the industrial agriculture mindset and ideologies in their students, when what is needed is: “research in agriculture not as a technological based science but as a ecological science.” (Interviewee 6) To create opportunity for a pasture-based transition we would need to “dismantle the centralized regulatory regime, and replace it with a decentralized regime run by states.” (Interviewee 1) Possibly retaining “a massively scaled back (in terms of the bureaucracy) USDA that could serve as an overseer.” (Interviewee 1) Regulation need not only be about restrictions, but should also facilitate opportunity.

5.1.2.5 The economic limitations of the consumer

Although direct marketing has been a breakthrough means for farmers to capture a more significant share of the customer dollar as well as establish a direct connection, so long as the products consist of premium quality and prices it may take the movement only so far. The majority of practitioners believed there is no limitation due to the affordability of the product, claiming it is well within reach of consumers who value food appropriately. Two farmers on the other hand suggested that alternatives such as “non-commodity wholesale” (Interviewee 1,8) would be necessary if the model is to become an economically viable option for a significant portion of the population.

Using the United States as an example, approximately 30% of residents are unable to afford the basic family budget (Allegretto, 2005, Sept 01). If this percentage of the population is unable to afford food at industrial prices (which are a quarter the cost of a pasture based product) (Interviewee 1) then it is not only a matter of a population simply re-directing priorities so they can spend more income on food. Direct marketing and premium products are certain to continue as a viable niche, however, unless the consumer collective redirects a portion of its spending toward sustainable food purchases as well as a decrease in the cost of living, or increase in the relative distribution of capital there will continue to exist this ceiling to the movement even if it is on a more distant horizon.

5.1.3 Opportunities within a multi-level framework

The following explores relationships between the niche of pasture farming, associated regimes and landscape and the opportunities that promote the existence of pasture farming along with its emergence within a multi-level framework. The three subsequent sections consist of industrial regime limitations that lead to niche level opportunities, communicating practices, and the pursuit of two separate pathways.

5.1.3.1 Industrial regime limitations that lead to niche level opportunities

Perhaps the greatest opportunity for the pasture based farming niche to becoming a regime of its own lies in the existing regime's limitations, not only with respect to resources and cost of inputs but the growing wariness of consumers and nations to include hormones and genetic modification in their food system. A sample victory for pasture-based practitioners was a trade dispute between the European Union (EU) and the United States (US) over the importation of American beef and their use of hormones, resolved after years of tension with the result supporting the EU's anti-hormone policies (Hagengruber, 2009, May 07). Such a landscape level limitation is limiting to the industrial regime whose development has been towards an increasing dependence on chemicals, yet ideally suited to the more natural practices of pasture-based methods. This was a well-known issue amongst those interviewed:

“we've tried it with herbicides, pesticides, fertilizers and machinery all requiring vast amounts of fuel, and any thinking person realizes this is a finite resource and that things have to change drastically, and that we have to manage it within the ecology of the farm, diversity, living with insects so they don't out do you ok, managing is the thing, need much more information in this area,” (Interviewee 6)

The sense from the interviewees was as though the farmers have come to terms with the un-sustainability of our socio-economic system, and were not only promoting an alternative means, but also preparing for some degree of eventual collapse.

The system that supports a globally focused food system and the multi-nationals that make it run is only resilient so long as international trade and a strong economy can support it. If the current global economic downturn was as unexpected as the experts

claim then it would seem unwise to risk the food security of so many on companies and systems, which could prove equally fragile especially when alternatives exist. Admittedly, industrial scale agriculture and livestock systems have come to maximize returns and profits, yet they in many ways minimize the environments and communities in which they do business. The pasture alternative to its advantage, acts as an ideally nested system within it surrounding ecological and social surroundings, a position which will only aid its transition from niche to regime.

If the landscape level in part represents consumer's awareness of food and the direct linkages to our health, then perhaps the landscape is beginning to hear the message that you are what your animals eat (Robinson, 2000). With an industrial focus on selective breeding for quick gains and diets rich in calories, modern livestock could be considered obesity on steroids, a concept growing among consumers and creating opportunity for pasture based systems and their emphasis on slow maturing grass based breeds (Pollan 2006a).

5.1.3.2 Communicating practices, an opportunity to manage limitations

As implied previously, the communication portion of pasture-based practices is essential to its success and sustainability, while remaining relevant in a society littered with advertising. Communication distinguishes the differences from the regime and in many ways conveys how pasture farming exists in a multi-level perspective even if other language is used. While aspects of traditional marketing and branding are practiced (Interviewee 2,3) they cannot compare to the budgets or expertise of their conventional competitors. Instead creativity along with more traditional face-to-face meeting and discussion offer the greatest opportunity. (Interviewees 1-8)

Capitalizing on alternative mediums has resulted in several of the interviewee's experimenting with keeping a web log or online account of the happenings and experiences of a pasture farmer. (Interviewee 1,3,6) Besides the sharing of information it creates an online community with other practitioners as well as would be practitioners. It

links established farmers with the would-be farmers or back-to-the-landers that offer a means for telling stories and a venue for relationship marketing that the existing regime cannot emulate. A virtual back-to-the-land movement creates a network of support and interest, in an alternative medium that was not formerly available. As the Internet increasingly gains a share of our daily activity and attention these web logs will offer an opportunity for farmers to share and customers to participate in the challenges and values that pasture based farming represents.

5.1.3.3 Pursuing two separate pathways

Increasingly there exists a growing disparity between two sectors in agriculture, that of the industrial scale as well as the growing level of participation in the micro or small farm (USDA, 2009). This sub-section focuses on the notion of existing within and outside the regime as well as the need for two-tier regulation and how these issues will affect pasture-based potential for growth and acceptance.

One of the questions asked, concerned the practitioners' thoughts towards industrial agriculture since there was a hypothesis that potentially two separate pathways were being pursued. As a whole, the results bore this out; pasture based practices and more specifically ideology, are emerging on two separate fronts (Interviewee 1,3,6). The first is seeking success within the capitalist system and the other more radical idea, explores an existence essentially outside the dominant system of exchange and value.

In a sense this represents an emergence at two scales in response to the dominant agricultural regime but also the dominant landscape. Suggesting pasture based farming is a first step towards altering the economic paradigm is in keeping with Rotmans suggestion where radical change occurs in incremental steps (2009). Certainly, not all the interviewees reflected the anti-capitalist position, and each of them is of course reliant upon existing infrastructure, but the notion of an alternative landscape is curious and may speak to a larger emergence. It leads to the question if part of their success comes from a rebellious consumer desire not to participate in the grocery chains but instead a

philosophy of *sticking it to the man* as it were. Although, if this were the case, alternative or near alternative systems such as the Amish, already exist. Conversations with interviewees suggest we already support a non-capitalist system with regard to large-scale agriculture as: “..subsidies remain a problem...with most of the subsidies going to very few people.” (Interviewee 6)

Exploring a landscape altering position contains the limitation of scaring off potential support from existing regimes and governmental aid and so should probably be considered an experimental exercise versus an end goal. As despite a sometimes libertarian position might suggest, to succeed and even exist in their current niche would not be viable without the greater socio-economic infrastructure even if the future holds alternative relationships.

5.2 Multi-phase Analysis

Building on the analysis of the previous section, this second stage of analysis features the multi-phase transition process. Understanding the agents and some of their connections segues into a forecasting perspective to determine the strengths and weaknesses of pasture based farming relative to moving up along the transition curve to become the dominant livestock paradigm. The following analysis and discussion follows the curve four key stages: predevelopment, takeoff, acceleration and stabilization.

5.2.1 Predevelopment

From a time period of little change (predevelopment) pasture based farming has more recently emerged into a more recognizable and talked about development. As Rotmans (2001) suggests it is a stage where a dynamic equilibrium exists with little visible change to the status quo. By this definition pasture based farming is very much in the next take-off stage with numerous and significant changes happening. For this reason the focus begins with the take-off phase.

5.2.2 Take-off

The transition period referred to, as early take-off is where pasture based farming finds itself as a transition niche (Fig. 3). Surrounded by significant changes in the system pasture based farming's trajectory is increasing in potential, yet its path is not assured. In this section of take off there are four areas of interest: Consumer accountability and its positive contribution, and three pitfalls the contrarian ideal, the reaction of Industrial agriculture, and avoiding organics fate.

5.2.2.1 *Ease of Entry*

The ease of entry to pasture based farming as a practice is a noteworthy benefit increasing the niches viability as a movement to grow. Alternatively, the lack of training and regulation can lead to problems, in particular at the current early period of the transition process.

Aside from high land prices, offset in part with the land optimization strategies and efficiencies of practices such as MIRG, the capital investment required to begin a pasture-based farm is quite low (Salatin, 1998). This allows existing landowners as well as those with little capital to enter a field formerly limited to those with access to significant capital or in a position to inherit land.

This ease of entry is aided further by accessible information for rearing livestock both on the Internet, by publication as well as land extension programs. While this easy access to information has created a growing interest for new participants, the information sources are ultimately limited for a profession so heavily reliant on experiential based learning.

The direct marketing model often in the form of farmers' markets, offers an additional entry point from which new farmers can sell their wares directly to the customer. The reality however, is that these markets support only so many farmers of certain types

depending on size and customer base. A typical error of novice pasture farmers is to sell their products before having come to terms with their costs:

“instead of opening new markets, new people coming in (vendors) can’t figure out their pricing structure, puts a stress on other vendors, everyone loses their shirts even if they only last a very short period of time” (Interviewee 6)

The result is within a few months the new farmers abandon their farming enterprise, while having economically undermined the more established pasture farmers.

To prevent cannibalism of sales and confusion among customers the establishment of a more universal message, as well as a coalition, could address the more common errors of beginners while strengthening the movement’s foundation, its farmers.

5.2.2.2 New Recruits for a Food Revolution

With information available from a number of nontraditional sources (traditional being experienced farmers as well as universities) a majority of practitioners are not coming from the regime of conventional agriculture but a wide variety of other areas and fields of expertise. From the eight practitioners interviewed seven had careers with no relation to farming, as an example: “left my job in 1999, director of country planning and economic development” (Interviewee 6). This influx of new ideas and ideology has likely had wide ranging implications and will continue to do so going forward in a transition to a larger regime. The diverse set of competencies should enable multiple strategies and approaches with which to defeat limitations as they present themselves.

With such a core component of the pasture model being human labor, there is a need on many farms for seasonal help in the form of interns or volunteers. Several respondents alluded to the frustration in receiving a lack of interest from students enrolled in agricultural programs, as well as the surprise from the significant interest coming from students in non-agricultural programs with certain programs even offering school credit:

“we have put out listing for WWOOF⁵ only the last couple of years there’s been

⁵ WWOOF – World Wide Opportunities on Organic Farms – In return for volunteer help, WWOOF hosts offer food, accommodation and opportunities to learn about organic lifestyles. (Wwoof.org, 2009)

some interest, not in the position like Joel (Salatin)⁶ who sees great demand for the internship positions he has, I would love it if he just sent the rejects my way, have a few people coming, skeptical of working along traditional agricultural schools because I'm so far outside the box, have found the schools that do not have agricultural programs is where I'm getting students who want to come out to the farm, they're not even Ag majors, at a local university there's an anthropology teacher who sends out 2-3 interns to all the farms in the area and they get credit for putting so many hours in doing whatever needs doing on the farm, those guys have been with us ever semester for 2-3 years, a tremendous help," (Interviewee 5)

Seemingly a change in target audience could result in greater interest for a labor supply but also potential future pasture farmers. Coordination and support from non-profit and the government level could encourage hard labor as dignified work instead of the taboo it is currently associated with.

The significant growth in participation from primarily new but also would be farmers, has been unplanned and without a long-term strategy. If it were to gain the support or oversight of a planning body, it would seem that recruiting skilled labor from a currently depressed housing sector (Weisenthal & Angelova, 2009, May 20) would be a natural fit. Some kind of land grant system with associated processing facilities as well as a mentorship program would need to be developed but the gains in employment should attract the interest of government (Herbst, 2009, May 22).

A significant limitation that came from the interviews was a lack of conviction from those interviewees in the most traditional agriculture and agriculturally dependent areas regarding conversion to pasture systems for existing farmers. (Interviewee 2,7)

"I don't really have my hopes up really, there is a segment of the agriculture population open to new ideas and checking things out, but a movement that would sweep across agriculture, probably not, where I live the line is "that's the way it has always been done", people are pretty narrow minded, first guy to try something is often looked at as a bit of an idiot, and then it takes 4-5 other people to try it and see that it works before it's considered," (Interviewee 7)

These two practitioners represented the largest farms in the interview process (300+ acres) indicating this hesitation for a reformation of their neighbor's ideals and practices

⁶ Joel Salatin – a pioneer in the pasture movement who appears in several articles and who has written several books on the subject as well as toured the country promoting pasture farming practices

may be additionally inhibited by the sheer size of operations. Never the less, an inability for rapid change from the current generation ties in with the gradual, continuous process that is typical of transition theory (Rotmans et al. 2001) and indicates the long term requirement for a transition. Both of the interviewee's in these areas were relatively young (30's) compared to the average practitioner age, supporting the generational time scale with which we need to consider regime transitions.

5.2.2.3 Certification and Labeling

The message, branding and other certification and labeling tools are a limitation that pasture-based farmers have for the most part circumvented. It is an important facet as consumers who wish to make informed choices with their food purchases face a maze of environmental and free trade labeling schemes (Stefanovic, 2008). When asked about certification schemes the participant farmers exclaimed frustration referring to Certified Organic as a “total failure” and “utterly meaningless in a marketplace awash in labels.” (Interviewee 1) Even for those consumers who spend the time to understand and differentiate the task can be incredibly difficult. Specifically Organic has suffered as the

“USDA is totally complicit in allowing the twisting of terminology in their definitions, consumer comes and says see I bought all these free range eggs and then I feel it's my job to point out to them the fallacy of their buying into the terminologies that are wrong, when we market our product we have to do it face to face education, its always the word education, and its not a subject too many people want to pay too much attention to, people have to be exposed to it, see it, meet the people, just because its more meaningful,” (Interviewee 6)

If consumers are becoming frustrated with the lack of clarity and transparency around certification schemes how can they then identify sustainable options and make informed decisions? The answer “in the supermarket, none of the decisions are good” (Interviewee 1) was often combined with “the absolute best thing customers can do is visit the farm, an instant sell.” (Interviewee 4) The majority of those interviewed had an open door policy for visitors to their farm as well as official farm days thanking the local community for their support. This openness and connection to their customers creates a form of relationship marketing that allows consumers to become supporters and in some cases

participants in their food system, what the literature calls “values-based value chains” (Conner, 2007) This level of participation represents a radical shift from the conventional system and perhaps is the strongest indicator of an emerging transition.

Handshakes and personal relationships may present a potential replacement and transition from certification schemes. Interestingly, as part of this transition, failed labels are acting as a point of inquiry for new customers and can be a bridge from which to develop an interest in pasture based products. One of the respondents saw enquiries if their operation is organic as a chance to have a discussion with potential customers:

“I’ve found that for myself especially at a farmers market people would use the term organic to engage in conversation, because they don’t know what to ask, but they obviously want to have a question about what you’re offering but they don’t want to insult you, but they want to know, so when people ask are you organic what it really means is what are you feeding your chickens, what’s in the feed, so when I look at the question that way and engage in conversation you can almost see the uneasiness ease away, and I’ve never had anybody not buy my stuff because I wasn’t certified organic,” (Interviewee 8)

It creates an opportunity to demonstrate how their operation in many ways exceeds and is *beyond organic* in the level of sustainability and level of animal welfare they strive to attain.

With a growing number of consumers getting acquainted with local farmers, a tipping point (Gladwell, 2000) is approaching where the desire to create relationships with food producers is gaining credibility at the same time certification schemes are becoming increasingly burdensome and confusing. The abandonment of yet another regime dictated structure, adds another piece to the foundation from which pasture farming is taking off.

5.2.2.4 *Contrarian Ideal*

As depicted in Figure 3, alternative scenarios other than acceleration and stabilization can follow the take-off phase. A source of system breakdown that may affect the pasture transition could come from its contrarian nature. While pasture based farming is certainly more than an opposing view to the established regime, a significant draw for its

membership is as an alternative to the conventional. The same multiplicity of backgrounds, which make for a diverse and well-rounded group of practitioners, would logically also lead to barriers towards unification.

It begs the question as to whether pasture farmers see themselves first and foremost as mavericks or farmers? When asked a question to this effect, most admitted bringing about change as “an initial impetus” (Interviewee 1) as well as continued motivation, but all admitted to a love of land and farming as the key reason for choosing farming as their choice of practice. This impetus and the passion these stewards of sustainability live each and every day could be capitalized on by sharing their efforts and values with the greater population so as to stimulate awareness and buy-in to the advancement of the system.

It is a balance that the participants need to find between continually pushing the movement to new heights while avoiding an early system breakdown from developing a movement so rebellious or elitist that the detractions outweigh the positives.

5.2.2.5 Mentorship

While not representing a managerial style of influence the viability of a movement such as pasture farming to one of regime status will be increasingly dependent on available mentorship to guide new practitioners. In a few years time current practitioners new to pasture farming should reach a critical mass of distribution and professional knowledge that will mentor and accelerate the growth curve of a second even larger generation, essentially acting as a feedback loop.

Unfortunately while this is happening so to is the retiring of a generation of farmers resulting in a substantial loss of knowledge and expertise around simpler methods. This loss of know-how will act as a real barrier unless avoided through a bridging mentor program that could transfer experiential based learning to the current generation would greatly accelerate the shift to a regime of pasture based farming. The farmers retiring in the next ten years (USDA, 2009) are some of the last to have grown up and experienced

an agricultural setting in many ways akin to the modern interpretation of pasture-based farming. For this transition to accelerate into the next state it should look to its past and learn what it can, while it can, so as to preserve best practices and solidify its future viability.

5.2.3 Acceleration

The acceleration period represents the phase of most rapid growth, where a breakthrough occurs resulting in visible structural change as well as a “collective learning processes, diffusion and embedding processes” (Rotmans et al. 2001). The five areas analyzed and suggested to affect this future phase are consumer accountability, the reaction of industrial agriculture, avoiding the same fate of Organic, and a combination of complimentary niche movements.

5.2.3.1 *Consumer Accountability*

Existing in each transition phase, consumer accountability is vital for pasture practices to achieve a critical mass. Certainly each factor and phenomena explored here has at least an impulse transition value, and a few, such as consumers increasing their accountability to the food system can “provide a flywheel force” (Rotmans et al. 2001).

The interviewee’s conceded that pasture based farming is a movement and that ‘we’re on the leading edge of a paradigm shift” (Interviewee 1), but it all hinges on a population developing a sense of accountability to their food system and a willingness to experience some level of inconvenience. Consideration of food sources and the welfare of the environment have been increasing and needs to continue in order to reach the next phase of transition.

To accomplish reaching this next phase we must encourage an increasing concern for animal welfare while preventing the continuing dissociation of meat from its animal origin, as explored by Hoogland et al. (2005) where they find:

“Combined, these two trends may interact to allow people to consume in ways that actually conflict with their personal values: their concern for animal welfare does not translate into corresponding food choices, as the product meat does not remind them of its animal origin.”

This conflict of values ties back to our level of accountability defined by the choices we as make. As consumers there needs to be a shift to local and knowledgeable linkages with our producers (Conner et al., 2007).

Perhaps the shift from take-off to an acceleration phase will be when “twenty percent of our food is from sustainable sources located within 50 miles” (Interviewee 4), but for now, organic and free range combined are from 2-5%, (Hoogland et al., 2005, Hatch, 2009, Apr 22) and this does not separate out the local portion so we can see there is still a significant momentum needed to achieve the next stage.

5.2.3.2 Reaction of Industrial Agriculture

With the afore mentioned small segment of the food industry which pasture farming currently captures, it has as yet to attracted significant attention from the existing regime of industrial agriculture that it could suffer a backlash effect (Fig. 3). The concern for competition is not direct competition; as to replicate the local presence and emphasis on animal welfare alone would not prove economically or structurally viable. Instead the fear is that of green washing, and capturing a growing consumer awareness before it is fully formed.

Two of the farmers interviewed exclaimed shock in hearing a radio advertisement from a multi-national known for genetic modification claiming a “commitment to sustainable agriculture through biotechnology and hybrid seeds” (Niles, 2009, May 13) both violations to what pasture practitioners consider sustainable. The confusion this can create is potentially an effective enough response from the established regime that it could stamp out a developing niche such as pasture farming before it truly emerges.

Watering down the language of sustainable methods emphasizes a need, for both better

regulations from the USDA, as well as avoiding too great a dependence on identity through language. Green, natural even sustainable are not sacred terms and therefore a defensive strategy emerging is one of abandonment from any one term and instead relying on a discussion and sharing of values in one-on-one situations between farmer and customer.

5.2.3.3 Avoiding an Organic Fate

Certified Organic is a means of identifying a production process that has been increasingly pursued by large organizations to where it potentially suffers from the transition concept of “lock-in” (Fig. 3). Since Organic represented a rapidly growing and profitable niche in agriculture, instead of taking over the incumbent regime (Ind. Ag.), Organic has instead to some extent been absorbed and encapsulated (Rotmans, 2009). *Big Agriculture* has capitalized on the profits but diminished many of the original values and sustainable practices that Organic represented at its inception.

Contrarily for pasture based farming to retain its greater identity, it must continue to exist in multiple forms and in countless geographically specific instances. Identity that is free from capture of the industrial regime needs to be unique and specific to each practitioner. This idea is counterintuitive to a system that preaches efficiency and hegemony, perhaps suggesting our efforts in the current regime have taken us in a false direction. Technological, institutional and carbon lock-in (Foxon, 2002) are all challenges largely avoided in pasture practices highlighting the unique opportunity for transition advancement which exists in this still underdeveloped niche.

Remaining difficult to label, local, and even contrarian will to some degree hinder but more importantly define and protect pasture based farming’s transition through acceleration and into the stabilization phase.

5.2.3.4 Combination of Movements

While it is a culmination of movements that already exists at the current take off state, it is only once they reach a critical tipping point and collective process that transition enters an accelerated phase. Initiatives such as local food, slow food, animal welfare, and organic each lends a portion to the critical mass and positive feedback systems that re-enforce each other's viability (Rotmans et al. 2001).

These other complimentary movements find themselves primarily at the same transition stage of takeoff. But there is also an opportunity for new niches such as pasture based farming and other food movements to combine with the environmental movement potentially finding similar ground fruitful to each party (Pollan, 2006b, May 31).

Pasture based farming will not only benefit from a continued success of complimentary movements, but also as from the increasing challenges facing existing regimes. One element of the existing regime is its rapidly aging farmer workforce (USDA, 2009), which represents an opportunity to allow for fresh ideas and methods to transition into the agricultural sector as the older generation retires. The rise of several niches and decline of the old regimes that represented, equilibrium, order, and stability, are in a system of transition interspersed with comparatively short periods of instability and disorder (Rotmans, 2009). Theory and forecast reality compliment each other, it is up to the influence of management to aid and ensure moderate chaos in a transition versus a less predictable scenario and potentially more devastating business as usual scenario.

5.2.4 Stabilization

In the stabilization phase the larger objective of a transitioning pasture paradigm happens when “the speed of social change decreases and a new dynamic equilibrium is reached” (Rotmans et al. 2001). As explored it represents the transformation from a niche level through dramatic change and growth to that of regime and stabilization. As this is a distant scenario predictions are necessarily less concrete, however, were pasture based farming to achieve this regime level the level of inherent resilience makes for an interesting opportunity.

5.2.4.1 *Built-in Resilience*

Viability in a competitive growth oriented world revolves around resilient practices and a model with the capacity to buffer change, learn from the input of a diverse set of participant expertise, and develop as its community develops (Folke et al., 2002).

Another opportunity for pasture based farming comes from requiring few external inputs, fewer still if we take a regional level perspective. Unlike more conventional systems pasture based structures are more insulated with regard to the commodity markets unpredictability for fuel and animal feed crops (Nation, 2005). The integration with local community creates a more direct communication around needs and responses to those needs spurring accountability to our food system and the farmers who nurture it.

With decreasing accessibility to resources such as oil and the pesticides, and fertilizers that depend on it, perhaps when we speak of black gold we will not be referencing a fossil fuel but compost and manure piles instead. Pasture-based practices are primed for transition and a long stability once it has emerged from its internal resourcefulness, and the ability to find local solutions from existing resources.

5.3 Transition Management

This section builds on the previous two sections of analysis with a focus on how transition management can influence the emerging movement of pasture-based farming and aid its evolution to that of a regime. To develop solutions, and not simply seek retrofit solutions, systems need to avoid complacency. This plays into pasture based farming's favor, as its balance of disequilibria vs. equilibrium with a group consisting of pioneering and diverse practitioners is unlikely to settle into a widespread stagnation (Rotmans, 2009). Transition and how the transition period should be managed are analyzed in five sections: the establishment of arenas, a transition agenda, the formation of new coalitions, support for the movement and finally the monitoring and self-

evaluation process. To aid the reader a visualization of the analysis is provided (Fig 4), where beginning with the micro arenas, the scope increases to that of support and finally reflection that interacts at multiple levels and stages.

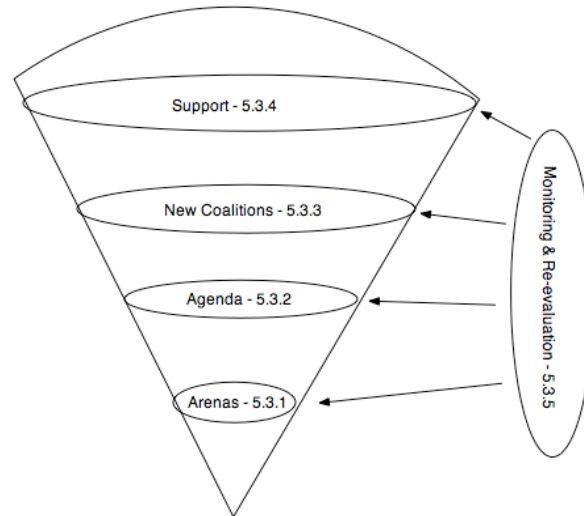


Fig 4. Transition Management Analysis of the Pasture based system as they are examined in 5.3, beginning with Arenas and increasing the scope of the perspective.

5.3.1 Establishing Arenas

For a niche to emerge it needs a transition arena, or a quasi protected area (Rotmans, 2009). We see this all the time in research and development for technology in order to protect and optimize a new product or service before it is released onto the marketplace. In the pasture based farming example those regime's with the capacity to foster such development would ultimately be acting against their best interest, and so pasture based farming has had to develop and evolve without a safe zone. The importance of arenas to the case study's transition is explored under two areas: emergence without an arena, and the importance of frontrunners.

5.3.1.1 *Emerging without an arena*

Pasture based systems face a daunting task in creating a product that to the best of their ability reflects full cost accounting. Challenging ecological considerations, fair working pay, animal welfare and other sustainability issues around agricultural practices are addressed to a greater degree of attention than the dominant regime, and yet still pasture

farmers find themselves in a growing niche (Manning, 2009, Feb 27). The interviewee's admitted the difficulty and challenges they face in having to operate in a one-dimensional (efficiency) infrastructure yet demonstrated no interest in seeking aid from government or organization as transition arenas normally would do: "I don't take any subsidies and it is a major crutch to big Ag holding it all together" (Interviewee 5). The subsidy aid that the conventional agriculture receives only furthers the disparity gap, instead of creating a level playing field or landscape as it were for the established Goliath regime and David niche to square off.

In the interest of sustainable processes pasture farmers may have to accept some influence of government and regulatory agencies if only to create an arena within which more challenging practices and methods could find room for experimentation. Linking farmers and markets in a region with others of complimentary needs is one such example.

Without an arena pasture farming has developed a self-incubator of sorts, where practitioners start with self-sufficiency with some extra production, which they sell barter and trade. From there growth occurs gradually or rapidly depending on the time and effort available. Even if arena establishment were not supported, simple infrastructural support such as processing facilities whose regulations were in keeping with their activity level and nature of business would significantly influence pasture farming's continued growth.

If a niche representing such high levels of sustainability, and can create a momentum not only of its own accord, but even when its competition requires life-support subsidies, it makes for staggering system extrapolation. Moving away from the industrialization trend of agriculture and livestock practices runs counter to what the past few decades have consisted of (Drabenstott, 1995), but regionalization and appropriate local infrastructure is only logical with regard to agricultural practices that attempt site specific optimization.

5.3.1.2 Frontrunners

A key concept in transition management is a focus on frontrunners, agents who possess the capacity to “generate emergent structure and operate within these deviant structures” (Rotmans, 2009). In the case under study the first set of pioneering frontrunners include Joel Salatin, Jo Robinson, Andre Voisin, Gene Logsdon (Salatin, 2001, Robinson, 2004, Voisin, 1988, Logsdon, 2004) and so many others. What they share in common are creative minds, they display elements of strategy, as well as visionary thought and foresight. (Rotmans, 2009) Additionally, “if a new regime is to be created effectively, agents are needed at a certain distance from that regime” (ibid.) of the agents interviewed only three grew up in an agricultural setting, with one inheriting a working farm. All of these individuals came from other professions and areas of expertise (aside from one who was a professor of agriculture) creating that necessary distance from the existing agricultural regime. Of the eight farmers interviewed, two had PhD’s and at least four had masters degrees, an unanticipated result, although it is possible that they were interested in this study given their academic backgrounds and that they are unlikely to be representative of the majority of practitioners. The success in academia likely translates well into pasture farming which “is more intellectually demanding than conventional farming. It deals in complexity and in the end is more an art than a science” (Manning, 2009, Feb 27). Ultimately, the combination of education and participation in championing the movement suggests that under transition management these farmers would make a solid starting point for the recruitment of frontrunners.

As the findings from the interviews bear out, the participants in this niche represent a multiplicity of backgrounds with few if any links to the industrial farming paradigm. They were attracted to the calling of farming not only because of the disassociation they felt with convention but also the many benefits of the new model. “Moments of elation” (Interviewee 3), system analysis, marketing, preservation, environmental stewardship and the great outdoors were all reasons for inspiring radical change in their own lives to pursue what we today consider an unconventional career path.

With no foreseeable shortage of new passionate individuals coming to the pasture paradigm, the next stage is assembling a network, which can structure the challenges and

envision solutions to the transition process. While Rotmans (2009) suggests an arena supported by political actors or regime powers, perhaps these networks can begin to take place of their own accord by the new agents whose diverse skill sets may compensate for lack of an arena from the industrial regime. The new U.S. administration may be a different story; for there is some realization that with more than 100,000 (2002 to 2007) new small farms (less than 50 acres) recorded in the recently released agricultural census (USDA, 2009) there is a need to aid in their continued development in the form of regional distribution networks (Martin, 2009, Mar 21). As momentum builds through a growing interest steered by the leadership of its frontrunners pasture based farming should attract the support of government interested in aiding the actors of a sustainable future.

5.3.2 Transition Agenda

“The transition agenda itself is the compass for the frontrunners, to which they can refer during their search and learning process” (Rotmans, 2009).

A transition agenda acting as a compass for the movement is the next major step needed by the pasture farming movement after the establishment of arenas and frontrunner networks. While pioneers exist in many parts of the country there seems to be a great deal of re-inventing the wheel (Interviewee 8) and wasted energy which management towards a common goal or pathway would resolve.

Rotmans (2009) suggests that multiple transition pathways (as currently exist) lead to a particular transition image (around the conversion to sustainability), and that these transition images in turn lead to a particular transition pathway. This transition pathway that stems from images, beliefs and values from within the movement is only just beginning to emerge, would benefit from an evolving transition agenda.

This transition agenda would also formalize some of the anticipation of future trends, challenges, and opportunities facing the pasture farming movement. It is a key

component of a long-term transition theory strategy (ibid.). The anticipation also ties into adaptability, which as a localized system connected to community, pasture based systems is well suited to take advantage of those ties to its region.

Aiding the development of even a loose adaptable and progressive agenda is the use of transition scenario building. Building from identified visions of sustainability can contribute to transition management scenarios that can provide a focus and direction to the pasture movement (Sondeijker et al., 2006). Influencing these scenarios would be complimentary movements in agriculture and from other sectors who as a coalition with shared values and vision would enhance opportunities for its participants.

5.3.3 Forming New Coalitions

Aiding the management of transition to a regime state will be the formation of coalitions within pasture farming as well as with partners outside the movement. From the interviews five of the participants (Interviewee's, 2, 3, 5, 7, 8) were members of and in some cases had a leadership role in various organizations around local agriculture, small-scale farm networks, and ecologically sustainable farming. The following two sections: the Pennsylvania Association for Sustainable Agriculture (PASA) and a modified USDA examine a successful and evolving model as well as suggestions of how the evolution of existing institutions will transform barrier to opportunity.

5.3.3.1 *Pennsylvania Association for Sustainable Agriculture*

One of the coalitions that an interviewee plays a prominent role in is PASA, a network for individuals, restaurants, farmers and anyone else passionate for sustainable solutions around food. They “Promote Profitable Farms that produce Healthy Food for All People While Respecting the Natural Environment” (PASA, 2009). A complimentary stance, to that of pasture-based farming, and an example for transition management coalitions. Interest and membership has been growing rapidly with this years “Farming for the Future Conference” (ibid.) seeing attendance figures of 2000 attendees, an increase of

over 700 from 2008 most of which were estimated to be new farmers (Interviewee 8). With a management strategy in place, the collecting of information and interaction with participants could lead to the formation of arenas and local networks for the sharing of knowledge and access to processing plants and other areas of need.

Organizations such as PASA while not exclusive to pasture based or grass farming are instead composed of complimentary non-traditional movements which can build from each others success and perhaps create an arena for agenda creation, one in which frontrunners can network from. The complimentary coalition structure is essential in this early stage of transition when numbers in individual regions for pasture farmers can be too low to effectively create a “tipping point” (Gladwell, 2000) of interest on their own. The cumulative knowledge from different sectors and points of interest could aid individual agents who would benefit from a coalition of support.

5.3.3.2 Modified USDA

To avoid the capture that has developed between the larger industrial agricultural firms and the USDA, multiple interviewee’s suggested the department of agriculture needs to transition into regional divisions with likely a national governing unit that sets standards for the regional offices “to meet or exceed”. (Interviewee 1) Not only would such a localization of policy and decision making be better tailored to local needs it would also drastically reduce the sense of oppression and resentment the majority of interviews had towards the department. Consensus was that this very powerful group of vested interests had no interest in transition or to create safe havens for emerging niches (transition arenas) but only to keep the status quo (Interviewee 1,3,5,6).

Without supporting notions of conspiracy theory, logically there does exist a responsibility on behalf of the food and drug administration to address the conflict of interest in companies that sell and produce both food and medicine. For a sustainable future we need healthy food from healthy food systems and if there are companies or people of “selfish interests who have missed the altruistic gene” (Interviewee 3) then they

need to be removed and replaced with coalitions and leaders of character and accountability that will make the sustainable and contentious choices.

5.3.4 Supporting the Desired Direction

To reach the next stage of transition and overcome future impediments such as infrastructure and modifying the model to make the final product more affordable, pasture farming will need to build on its internal support and that of coalitions. Some of the interviewee's aversion to subsidy comes from the strong desire to avoid external control and maintain independence from government interests. There are however methods of supporting the evolution of a movement, potentially on multiple fronts without having to resort to direct subsidy.

5.3.4.1 *WIC-ed solutions*

One initiative that holds promise as an opportunity to supporting the pasture paradigm without direct aid. is through the special supplement and nutrition program for Women Infants and Children (WIC). WIC provides nutritious foods, and food education to low-income women, infants and children up to the age of five who suffer from nutritional risk (WIC, 2009). From the interviews it came out that low-income participants of this program will travel over 20 miles in each direction to use their WIC coupons at approved farmers markets. While at the time of this interview pasture based meats do not qualify, if they did it would be a very interesting method of making government dollars work twice, supporting those at nutrition risk as well as emerging sustainable farmers.

In 2008 the average monthly participation for WIC was 8.7 million with half being children. For 2009 congress has appropriated 6.8 billion dollars for WIC (2009), if even ten percent was set aside and designated for use at local farmers markets it would represent a significant stimulus to the local farming sector.

Local currency represents another possible alternative and although not likely to be as readily supported by government it was viewed as favorable in the interviews where it was mentioned and has several successful examples (Monbiot, 2009, Jan 20, Haley, 2009, Apr 22).

Since the farmers claim to frequently be limited by the availability of labor the exchange of local hours as a means of transaction was an interesting find. For those in the community of few economic means, perhaps the unemployed, it is an opportunity to put in some working hours for food, or other goods and services (Ju, 2005, Oct 19). For the farmer they can use the local hours right away or accumulate them and use them in the spring, fall or whichever time of year they are of the greatest benefit.

While the recommendations that are explored here are of an alternative nature we are also dealing with an alternative case. A transition into a more dominant or the dominant regime is unlikely to still feature identical means and methods of transaction, and so in our agenda of “anticipation” and “adaptability” there needs to be some accounting for these alternative possibilities.

If even a fraction of the 12.8 trillion dollars the U.S. Government and Federal Reserve has lent, spent, or committed to stimulate the economy over the past two years (Pittman & Ivry, 2009, Mar 31) were instead spent on a transition agriculture initiative with pasture based farming at its center, the results could transcend our current agricultural paradigm to new states of sustainability.

5.3.5 Monitoring and Re-evaluation

This reflective stage of the transition management process revolves around monitoring, evaluation and learning (Rotmans, 2009). While it is the final section explored in the analysis of transition management it can take place at any or multiple stages, and is continual and critical to an evolving drive towards a relationship of sustainability with our environment and food sources. There are multiple methods and strategies both within

and from disciplines outside of transition management that can provide the frame for which to develop this higher level of sustainability. As a last sub-topic however the analysis will be the subject of choice, and how it has been a constant underlying theme throughout the writing of this thesis and most especially in how it relates to transition management.

5.3.5.1 Choice

Behind the issues of viability, determining the degree of impediment or opportunity exists the mental process of choice. Transitioning from one state to another, particularly in a complex system requires many evolving decisions and choices that influence the eventual outcome. To challenge conventional practices and substitute grass instead of grain is one such choice, as is the refusal to use the level of production as an indicator for the success of the farm. In fact throughout the interview process and the analysis of the results it was striking the level of change and sacrifice the participants had to make in order to actively participate as a part of the sustainable solution to the industrial food regime.

Reflecting on the implications of choice theory (Glasser, 1999) throughout the transition management process ties in to a deeper influence and determination of actor's personal choices and transformations. Strongly influencing these choices is the culture North Americans have created, one that is too easily inconvenienced and afraid of the implications those inconveniences might have on our quality of life. (Pollan, 2006b, May 31) But perhaps it is time to reflect on what has come to constitute as a *quality of life* and seek a transition there as well, so as to support a sustainable food structure and recreate a greater sense of freedom through our connections to the food we eat.

Solutions are in many ways a subject of the degree to which we create complications that lead to the limitations and obstacles preventing sustainable practices (Interviewee 1). While one could argue the landscape within which we operate exists in multiple layers, how we choose to operate within the majority of these landscapes relates to our

perception, a perception determined by values. While our perception of the complications and limitations to regime change from industrial to pasture based are to an extent real, they can be isolated as a separate factor from the actual impediments. Monitoring and separating the real from the perceived threats to the various stages of transition management will significantly affect the desired outcome of the pasture-based movement.

Managing a transition to sustainable farming practices is far more complex than the surface would suggest, but through appropriate choices and the careful influence of parties seeking a sustainable paradigm, we should be able to achieve a new state of equilibrium that future generations can rely on.

6 CONCLUSIONS AND OBSERVATIONS

6.1 Concluding remarks

Pasture based farming as a practice holds a unique promise for sustainable livestock management, as does its manifestation as a viable movement, if only in somewhat less concrete fashion. As this thesis has discovered the passion of the interviewee's and their success without aid and under the shadow of the existing regime speaks to the rigor and vitality of the existing niche. Pasture farming perhaps without being fully self-aware, is preparing for a take-off into another phase of transition; still to be determined is the level of success the next phase will entail.

So much of its success will depend on our ability as a population to shift towards less consumerism and a greater emphasis on values. Less Big Macs, more grass-fed beef. It might even require a shift to eating less meat, but certainly more whole foods raised under natural conditions in many ways like it was during our grandparents' time.

As explored in the paper the impediments preventing this shift exist at various structural levels and in some cases within the movement. They are not inconsequential, but through

analysis can be influenced such that they are manageable and therefore allow for the evolution of a pasture paradigm.

In conclusion, the natural formation of a movement, such as pasture based farming, represents an appealing opportunity to apply the systems perspective of transition management. Applying such a theory to an emergent system could capitalize on existing advantages while offering new opportunities. It is the authors' hope that some new insight as to the consideration of theory and the pasture case study can result in inspiration towards a more sustainable food system.

6.2 Observations

From the analysis of this thesis there have developed several observations of interest. The observations are as follows:

- Language which can be twisted by competing regimes is not to be relied on but instead can act as lead in to more meaningful discussion and relationship building, an inherent strength and form of resiliency to external absorption and influence,
- Cost of product while a smaller limitation at this stage could represent a real barrier towards the participation of a significant portion of the population and a transition to the regime level,
- The education of potential costumers requires a significant effort and is a challenge that often occurs in isolation when many farmers are repeating the same message, an issue which co-developed agendas could resolve,
- Farming, traditionally a set of experimental based practices passed from one generation to the next is seeing a renewed interest from a generation with little mentorship and books as well as electronic research as its foundation,

6.3 Suggestions for further research

With a system of so many factors and influences there exists a multitude of pathways for research. Listed here are several, that with additional time and resources, the researcher would be interested to pursue:

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- A study around the application of certain transition management practices (arenas, frontrunners, agenda building) and their effectiveness in evolving the movement,
 - Research into the development of coalitions with other food groups with the attempt to determine their interdependent success',
 - A more detailed analysis and exploration of the USDA's efforts and initiatives for sustainable agricultural initiatives while exploring alternative models,
 - The success and challenges facing similar systems on other continents and what mutual benefit could exist from international coalitions of pasture practice,
 - A consideration of wealth distribution as an underpinning that supports the existing industrial agricultural regime, considered in a complex system view of the food production and consumption cycle,

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8 APPENDICES

Appendix A – Qualitative questionnaire

- 1.1 Can you tell me about how you got into farming?
- 1.2 Why?

- 2.1 Can you define your style of farming? (MIRG/Grass farming/Pastoral?)

- 3.1 What have been your successes?
- 3.2 Rewards? (Personal and with regards to your farm)

- 4.1 What are the problems and challenges? (Personal/farm and at a regional/national level)
- 4.2 How might we address the challenges?

- 5.1 What would you say about the Lifestyle?

- 6.1 Would you consider what you're doing as a movement or shift in agriculture?
- 6.2 Why?
- 6.3 Are there limits to this movement?
- 6.4 How can we remove the limits?

- 7.1 Would you consider yourself against Industrial Agriculture?

- 8.1 What of the critique that only a limited % of the consumers can afford the product?
- 8.2 What is your estimate of projected Demand?
- 8.3 How far could it go?

- 9.1 Can you speak to the inability of consumers to understand the labels?

- 10.1 If all farming was local, sustainable etc, would you still be doing what you're doing?

Appendix B – Objectives behind question design

Q	Objective
1	Create rapport with the interviewee and to establish some of their reasons for pursuing farming both as an occupation and a lifestyle
2	See how a group of practitioners define their technique and style, especially relevant to one so poorly defined.
3	Determine the successes and rewards from the perspective of the practitioner in order to better understand their motivation as well as success of the movement.
4	Determine the primary obstructions to growing this sustainable practice from the opinion of the practitioner.
5	Determine what constituted as a life spent farming, highs as well as the lows.
6	Understand how the practitioners saw their practice in relation to agriculture as a whole
7	To see if there existed an “us vs. them” mentality for those practicing pasture based farming.
8	Ties into previous questions around challenges (price) and the extent to which the practice can expand (movement).
9	Explore the challenges these practitioners of a new method face with the proliferation of other certification schemes and labels such as organic
10	To see if something more revealing might appear than from standard questions

Appendix C – Interview results: themes and categories

	Question 1	Question 2	Question 3	Question 4	Question 5
Themes	Further education Alternative career Unplanned Hopefulness, future oriented Niche focus direct marketing Self sufficiency Quality ingredients Inaccessibility Passion/calling Food interest Research Inherited interest Lifestyle, freedom	Unconventional Family farming Multiple species Subsistence plus Pasture based ecological farming Human powered Ideal vs reality Contrary farmer Flexibility Hard work Beyond production Pasture everything Local	Quality of life Lifestyle Local farmers Env. impact Connecting with customers Control Land improvement Direct marketing Local focus Making it work Refining the system mentorships Rebuilding infrastructure	Infrastructure limitation equitability Balance off farm work with on Developing an income Time Lack of knowledge Not fitting the model Time Manpower mentality Acces to land regulatory system	Personal health Not stressful Drudgery at times Introspection Absolute elation Transcedant satisfaction Watch the land improve Control Freedom Slower pace of life Best corner office Simple life isn't so simple
Categories	Inherited Interest Self Sufficiency Clash with Conventional Sense of Passion	Unconventional farmer Beyond Organic Pasture everything Human powered system	Building community Something from nothing Lifestyle Economic success	Glass Ceiling Limitations to Infrastructure Equitability Knowledge	Personal Health Still work Moments of elation Freedom & Autonomy

	Question 6	Question 7	Question 8	Question 9	Question 10
Themes	Movement plus Marketing model 100% grass fed animal welfare choice over necessity Resilientcy Multiple movements Increasing awareness In reaction to Limitations New farmers	Anti capitalist Conv farmer indentured servant Need them to exist All the environmental problems Against anti environment Unsustainable Ecological science Finite resources Inhumane Anti industrial ag Anti small farmers	Affordability Amish scale Social, political change needed End consumerism Income for food Farmer connection Different product Eduction limitation Complicated factors Local currency Conventional model will end	Impossible tasks Consumer awareness Complimentary movements Frustrated with labels Gradual education So many meanings Government One size fits all Direct relationships Subsidies a problem Conversation starter Local over organic	Impetus a reaction Comparable attraction Best life Economics not always there Same playing field Farming a necessity for us So much easier!
Categories	A reaction Paradigm shift Mentorship Resilient by definition	The indentured servant Need for Ind Ag Change of Emphasis Regulation	Affordability Needed changes Potential End of conventional	Overwhelmed and disengaged Failure as Opportunity Education & Communication Relationship Marketing	Contrarian ideal New Model Spiritual