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Title: Just Wheat Transitions?: Working Toward Constructive Structural Changes in Wheat Production

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1 Introduction

Agricultural systems in the United States are under increasing scrutiny, for their contribution to carbon emissions and water quality issues, the use of synthetic pesticides, and instances of exploitative labor practices, to name a few points of contention. Often concurrent to these critiques are arguments identifying the root causes for, and solutions to, undesirable systems of food production. Our work primarily engages and expands upon one of the less developed of these assessments. Namely, we are responding to calls for research into sustainable transitions and food justice within agriculture (Gilbert, Schindel, and Robert 2018; Hinrichs 2014), concepts that are also receiving attention within policy efforts such as the Green New Deal (Gurian-Sherman et al. n.d.; Ocasio Cortez 2019). We ground our analysis in the lived experiences of wheat growers in the US High Plains region, looking specifically at the barriers and opportunities they face in transitioning to organic wheat production. Conceptually, we approach the case through a “good farmer” informed structural constructivist framework, which allows us to examine the conditions and relationships that shape the ability of growers to enact what is known in the literature as just transitions.

The idea of just transitions (e.g., Gilbert, Alexandra and Robert 2018; Healy and Barry 2017) is at least partially in response to the relatively more developed sustainability transitions literature (e.g. Bui et al. 2016; Geels 2010; Geels and Schot 2007; Markard, Raven, and Truffer 2012). Sustainability transitions often take on a multi-level perspective to examine how systems transition to more sustainable regimes (e.g. see Geels 2010; Geels and Schot 2007). This approach analytically distinguishes between three levels: niches where experimentation and innovation take place, socio-technical regimes which lock in and stabilize a number of dimensions, and exogenous socio-technical landscape (Geels 2010). However, others have been critical of sustainability transitions frameworks that prioritize the role of states and markets for fostering innovation, and in ways that are mechanistic and over-determined (Hinrichs 2014). Human agency and the politics of sustainability transitions are argued to be obscured by traditional sustainability transition approaches (Shove and Walker 2010). Indeed, governance and power imbalances and democratic deficits are key barriers to transitioning (Anderson et al. 2019).

We suggest that sustainability transitions frameworks within food and agriculture can be improved by drawing on the “good” farmer and food justice literatures. Food justice works to challenge the structural drivers of inequities within (and beyond) the food system (Sbicca 2018). To achieve food justice often involves organizing around a number of nodes including trauma, inequity, exchange, land, and labor (Cadieux Valentine and Slocum 2015). Food justice literature centers traditionally around marginalized and underrepresented communities, or lack thereof, in food system improvement efforts (e.g. Alkon and Agyeman 2011). This is exceedingly important work, especially because of historic inequities and injustice experienced by communities based upon race, gender, and culture. However, there has been less work to develop our understanding of food justice within traditionally overrepresented identities, such as rural white male farmers, who also have valid claims for experienced injustice (Carolan 2019). It can be easy, for instance, to place the onus of transitioning on farmers, though it is worth remembering their disadvantaged position within the food system (e.g. Carolan 2012; Pilgeram 2011). At the same time, scholars highlight producers’ position within a broader cultural field, which can inflict social pressures upon how to practice “good” farming (Burton

2004; Carolan 2005; Stock 2007). In short, farmers experience a number of significant barriers to transitioning that can translate into real tensions between maintaining their own livelihoods and adopting management practices that align with others' visions of how a just food system ought to look.

By bringing food justice and "good" farmer perspectives together, we demonstrate the use in a constructivist informed approach to just food system transitions. As Swilling and Annecke (2012, p. xiii) suggest, just transitions "will involve deep structural changes that will require extensive interventions by capable developmental states, active commitments by progressive business coalitions, *and* a mobilized civil society rooted in experiments that demonstrate in practice what the future could look like" (our emphasis). While we engage with a number of potential structural changes, including the adoption of the Good Food Purchasing Program and the Green New Deal, we also take seriously Swilling and Annecke's argument for the need of a "mobilized civil society". Specifically, we engage with how farmers in rural communities, especially wheat producers, may experience and respond to proposed structural changes. In this way, we also have a constructivist interest in the implications of proposed landscape-level changes to achieve just transitions. In a sense, constructivism can help us understand tensions within those "deep structural changes" that Swilling and Annecke explain as being vital to transitions. After all, the way that people such as rural farmers feel about, and respond to policy changes that emerge often from urban centers is part of the puzzle of understanding social change (Carolan 2019; Wuthnow 2019). For instance, some have found differences in the ways that urban and rural populations think of justice (Carolan 2018), which has implications for how we think about justice in just transitions.

In this paper, we develop a structural constructivist approach to just transitions. Through this framework, we demonstrate the benefits to engaging more thoroughly with a structural impulse on one hand, with its focus on regulatory and state-level opportunities and constraints, and constructivist perspective on the other, where phenomena such as lived experiences are privileged. We begin by characterizing change within the case of wheat production. This is not to suggest that adopting organic production is necessarily a transition that is just to all involved—a *just* transition. In fact, we use this case to highlight how this transition challenges differing definitions of "good" farming and argue that lessons can be gleaned to understand tensions within transition efforts more broadly. This is followed by our conceptual framing of just transitions and the importance of structural constructivism in change. After describing our methods, we examine the various factors wheat producers face in transitioning to organic wheat production. Wheat farmers provide a helpful case for studying just transitions because they are exceptionally locked into commodity markets, generally own large areas of land, and tend to be at a greater spatial distance to urban areas, for example. We draw on interviews, a focus group, a listening session, and observations with organic and conventional wheat producers to analyze the environmental, socio-cultural, policy, and economic barriers and opportunities to transitioning.

2 Food System Change: The Case of Wheat Production in the US

Change and uncertainty are two constants within food systems. In practice, change is often explained as being due to changing economic relations, state intervention, new technologies, and/or environmental and socio-cultural change. Through a value-chain economic lens,

practitioners might understand change as the result of new consumer preferences which lead to different types of production and distribution practices. Here, the free-market is assumed to be the locus of change. A socio-cultural approach considers the role of social networks and attitudes, values, norms, and beliefs about food and agriculture production. Others might argue that governance plays a primary role in change. For example, we could point to introduction of the Farm Bill in 1933 as part of FDR's New Deal which boosted prices by paying farmers subsidies to fallow land; subsidies, in turn, can become barriers to change, as we note later when discussing crop insurance. Today we have pushes for other such state approaches to transitioning agriculture including the Good Food Purchasing Program (GFPP) and the Green New Deal. The GFPP, developed and managed through an independent non-profit organization, is particularly relevant because it is currently becoming integrated into policies as a performance standard for municipalities and institutions in their efforts to make procurement practices more sustainable. For example, procuring from USDA Certified Organic farms results in points for participating institutions. In this section, we describe some of these dynamics in food system change, especially through the lens of organic wheat production.

Wheat production has become increasingly uniform in North America. This includes the types of ownership, where it is grown, and the control of wheat variety development, including specific genetic traits (Howard 2016). Milling and baking is controlled by a few large corporations. Once a leading exporter, the U.S. has fallen behind the E.U. and Russia. In 2012, wheat accounted for 55 million acres harvest in the U.S. This included 147,000 farms, though this number is decreasing as farm size increases. In the U.S., approximately 40% of wheat grown is hard red winter wheat, 20% is hard red spring, and the rest is soft red winter, soft white, and hard white and durum varieties. The increasing uniformity of the wheat industry in the U.S. (e.g. in ownership, geography, and varieties) (Howard 2016) has led to a decrease in knowledge about processes such as baking and milling, for instance.

There have been attempts to reorganize wheat production and marketing so that they adapt to changing commercial and social contexts, including the demand for particular qualities of foods, such as organic. Led by capital, but mediated by other social actors, Magnan (2011) argues that the shift to focusing on the quality of food has occurred through a growing influence of private standards, neoliberal governance, and audit technologies. Through an in-depth case analysis, it is argued that by developing innovative relationships with downstream actors signaled by new end user demands, wheat growers in Canada have adapted to changing commercial and social contexts. This aligns with other work that has examined the "economy-of-qualities" thesis (for example see Campbell 2005; Campbell, Lawerence, and Smith 2006).

USDA organic certification is an institutionalized certification that has been shown to be full of contradictions that increasingly undermines its' original environmental aspirations (Allen and Kovach 2000). To capture the potential for higher profits with organically labeled products, agribusiness has found ways to shape organic practices to its advantage, including through reductionism, the practice of input-substitution, bifurcation, conventionalization, and various other strategies (Buck, Getz, and Guthman 1997; Guthman 2004). As a global commodity, organic wheat production is even more susceptible to these economic pressures.

We can also understand transitioning to the production of organic wheat as the result of social relations, which include norms, values, and social networks, for example. For example, research has found that farmer adoption of sustainable and organic practices has a social and

moral component (Beedell and Rehman 2000; Mzoughi 2011). Displaying environmental commitments to social networks and not feeling guilty about one's choices are found to increase probability of organic farming adoption, while farmers who prioritize economic concerns are less likely to adopt organic farming practices (Mzoughi 2011). This suggests that if supportive markets and policies are not in place, then organic production relies more on socio-cultural relationships. Similarly, Sutherland and Darnhofer (2012) describe the relationships between economic changes and conversion to organic practices, with conversions often occurring due to desire to be more profitable (more on this later). In short, when policy is enacted to guide, nudge, and/or mandates certain transitions, it is always toward an end with normative connotations. Sometimes those values are in plain sight, such as in the *Good Food Purchasing Program*. Other times, they are obscured through the use of terms like more sustainable, resilient, and healthy; concepts that also imply foods that are not that are "bad" and by implication so, too, are those raising them.

There are also social dynamics related to farmer orientations toward new technologies that may be necessary for transitioning to organic in ways that are profitable. For instance, there are social structural patterns which place limits on the types of technologies available to wheat growers, for instance, and the capacities for farmers to use them (Glenna, Jussaume, and Dawson 2011). Glenna et al (2011) found there were different farmer orientations toward technology that align with the simultaneous enactment of Fordism, post-Fordism, and anti-Fordism. When considering what technologies to adopt, it matters where farmers go for information.

Others have argued that social networks play key roles in transitioning and remaining in alternative agricultural practices such as organic (Blesh and Wolf 2014). For instance, Koesling et al. (2012) used qualitative case methods to study why farmers move away from organic. They found that stricter regulations, low-income, and lack of social and political support were major factors in deregistering from organic certification. This suggests that policy and market-led changes can struggle if they are not informed by the current barriers farmers may already face, including those found in their social networks.

3 Conceptualizing Just Transitions in Food Systems

One of the more integrative attempts to explain change in systems, which includes agricultural systems, is the sustainability transitions approach that uses a multi-level perspective to examine transformation (e.g. Anderson et al. 2019; Bui et al. 2016; Geels and Schot 2007; Smith, Voß, and Grin 2010). However, there have been critiques of this approach, particularly for not dealing well with agency and the politics of sustainability (Hinrichs 2014; Shove and Walker 2010), subjects central to food justice. Therefore, there is opportunity in drawing on the food justice analysis to help inform the structural analysis of sustainability transitions. We are especially focused upon food justice from the perspective of recent attempts to integrate questions of rural justice into food justice analysis (Carolan 2019). This is where the constructivist part of structural constructivism becomes central to our conceptual contribution. Essentially, a structural constructivist framework pushes us to consider and thoroughly engage with how farmers experience, resist, and contribute to the construction of broader structural changes. Here, the ability to achieve just transitions is related to how actors, in our case, wheat farmers, are able to be enrolled into transformative processes. The "good farmer" literature

(e.g. Burton 2004; Sutherland 2013) provides a roadmap for this analysis by foregrounding the lived experiences of farmers, and in a way that recognizes the role of symbolic and cultural capital in transitions.

3.1 Sustainable or just transitions?

Sustainability transitions examine change through a multi-level perspective and in doing so aim to anticipate and characterize the complexity of change in socio-technical systems (Geels 2010; Geels and Schot 2007). There are three levels which interact as part of the process of transition: niches, socio-technical regimes, and the socio-technical landscape (Geels 2010). Technological niches are where radical novelties emerge and are viewed to occur at the micro-level. The sociotechnical regime refers to the shared cognitive routines in a community of practice. It is characterized as having a stabilizing effect through creating biases, regulations and standards, and sunk investments (Geels and Schot 2007). The sociotechnical landscape is viewed as exogenous but having direct impact on niche and regime actors. This multi-level perspective then views the speed of change occurring on a spectrum from quick (niches) to mid (regime) to slow (landscape). It is argued that niches create momentum through learning, improved prices, and more support from powerful groups; that landscape changes put pressure on the regime and niches; and that regime destabilization creates opportunities for niche innovations. However, transitions through niche innovations are not easy as systems are stabilized by lock-in mechanisms such as investments, norms, vested interests, infrastructure, and policies.

There are a number of critiques of the multi-level perspective mainly emphasizing an overly functionalistic approach (e.g. Smith, Stirling, and Berkhout 2005) and too much focus on niches as the main change agents (e.g. Berkhout, Smith, and Stirling 2004). It is argued to privilege rational action and neglect differences in context, as well as ignoring other types of agency. The functionalist flavor of the multi-level perspective can be viewed as not dealing well with power and the politics of transitions (Shove and Walker 2010; Smith et al. 2005). Indeed, the concept of sustainability is contested and therefore both practical and scientific approaches to understanding sustainability can be viewed as exercises of power (e.g. Agyeman, Bullard, and Evans 2003; Hale et al. 2019; Rosin, Campbell, and Reid 2017; Swilling and Annecke 2012). Further, the multi-level approach does not deal well with the impact of landscape level change on the agency of niche actors to create regime change (Berkhout et al. 2004). There is opportunity to improve the multi-level perspective by more thoroughly engaging with social justice.

There have been such efforts to develop a justice oriented approach to transitions (e.g. Swilling and Annecke 2012), primarily in the energy sector (e.g. Healy and Barry 2017; Jasianoff 2018; Mayer 2018) and climate change (e.g. Routledge, Cumbers, and Derickson 2018), although some efforts have begun in labor studies (e.g. Stevis and Felli 2014) and food systems (e.g. Anderson et al. 2019; Gilbert et al. 2018). These approaches work to deal more with the normative concerns within transitions such as distribution, fairness, and justice, as well as developing participatory strategies for policymaking which meaningfully engage various histories and cultures. In short, a just transition is one that intentionally works to enact justice in transitions, something that is often missing from governments, companies, institutions, and researchers working on sustainability related issues (Heffron and McCauley 2018).

3.2 Food justice and transitioning farmers

Food justice scholarship provides tools for examining justice and food system transitions. Particularly it can aid us in analyzing landscape conditions and opportunities for change, as well as attention to power within the context of food systems. These approaches often view food justice within food systems work as being tied to broader social struggles for justice. As Sbicca 2018 put it, “food justice includes all ideas and practices that strive to eliminate oppression and challenge the structural drivers of all inequities within and beyond the food system” (Sbicca 2018, p.19). Food justice research explicitly centers structures of oppression into its analysis, especially institutionalized racism, racial formation, and racialized geographies (e.g. Alkon and Norgaard 2009). Others such as Cadieux and Slocum (2015) emphasize modes of transformative change needed including practices which address trauma, inequity, exchange, land, and labor challenges, factors that are tied to broader oppressive landscape dynamics related to race, gender, class, etcetera.

Generally, food justice approaches emphasize the need for more agency in food system transitions by people who have been marginalized in both decision-making processes and distribution of resources (Hinrichs 2014), coalitions across social movements (Sbicca 2015), as well as advocating for transformative policies such as the Green New Deal and the Good Food Purchasing program. How, then, does food justice scholarship help us understand the role of farmers in just transitions? Our structural constructivist framework argues that farmers (especially commodity farmers) are often marginalized in food activism and that studying the construction and reproduction of constraints they face can help improve policies, policymaking processes, and activism aimed at just transitions.

Though some have rightly argued, premiums for farmers have often been unfairly centered in food activism at the expense of low-income residents (Alkon and Guthman 2017), this also glosses over the structural constraints that farmers are often under (Carolan 2019). Indeed, distribution is one part of justice along with culture and identity, as well as political representation (Carolan 2019). While at a structural level, dominate farmer identities have traditionally been overrepresented (i.e. white, male, and conservative identities), in efforts to improve the food system (e.g. sustainability events, policymaking processes aimed at food justice), these identities tend to be underrepresented (Carolan 2019).

The underrepresentation of farmer identities in food activism is often at least partially the result of rural symbols tending to be devalued within urban policy, institutional, and interactional spaces (e.g. country music and dress, farmer knowledge of sustainability), hindering their ability to shape the symbolic capital for improving the food system in a way informed by rural livelihoods (Carolan 2019). This is especially relevant because there are differences in views of justice between urban and rural populations, and often rural spaces are no better off distributionally than urban (Carolan 2018). In this way, there are power imbalances and democratic deficits in shaping how to improve the food system, which often neglect community-led governance (Anderson et al. 2019) and opportunities in aiming to garner support for incorporating farmer’s knowledge into the production of producer led and controlled initiatives (Legun 2011). For such reasons, a structural constructivist view of just transitions allows space for also studying and prioritizing affective ways of enrolling farmers into the process of just transitions including the construction of determining important investments, norms, interests, infrastructure, and policies.

3.3 Constructing “good” farmers in just transitions

The lack of involvement of rural producers in just transition conversations provides opportunity for scholarship to play an enactive role in working toward new worlds (Law and Urry 2004). Taking this enactive potential seriously, our framework links a constructivist approach, which is focused upon the lived experiences of farmers, with a structuralist analysis, which hones in on structural, landscape and regime level proposals to enacting just transitions in the food system such as the Green New Deal or the Good Food Purchasing Program. The “good farmer” perspective informs the constructivist aspect of our just transitions framework. This approach often deploys pragmatist and practice traditions to examine farmer behavior (e.g. see Burton 2004; Stock 2007; Stock and Forney 2014; Sutherland and Darnhofer 2012). Essentially, the “good farmer” concept emphasizes the meaning that arises through the production and display of mutually recognizable symbols across a shared social network (Sutherland 2013).

Agroforestry approaches, for instance, directing farmers to also become foresters and recreation providers have faced resistance as they are pushing growers to become – identity-wise – something they are not, namely, “foresters” and “recreation providers,” which is not, these producers report, the same as being a “farmer” (Allison, 1996; Lloyd et al., 1995). Research also indicates that farmers are more open to conservation practices when those practices align with what they and their peers think of when they think of “good” management practices.

“Biodiversity,” therefore, that does not threaten their bottom line – like barn owls, pheasants, and song birds – are generally welcomed, whereas livestock predators and out-of-place plants (i.e. weeds) are things needing to be eradicated—to not do so threatens their status among peers. Yet, if one’s peer-group is populated by individuals sympathetic to organic and/or agroecological practices than what are “weeds” for another group might be understood by this one as “wildflowers” (McHenry, 1997). It is also important to understand that conceptions of “good farmer” among individuals and groups are not fixed but can change over time.

Sutherland and Darnhofer (2012), for example, interviewed English farmers who converted to organic practices, concluding “that the cultural values associated with conventional farming had to be devalued before conversion to organic farming became a conceivable option for many farmers” (p. 239).

These symbols of what “counts” can be dress, farm infrastructure, yields, and tidy fields. Among larger-scale commodity and specialty growers, such visual representations might include weed-free rows, reduced tillage for soil conservation, mowed grass borders between the road and field, and new, well-maintained equipment (e.g. Dentzman and Goldberger, 2020). What might be deemed important markers of success among organic growers, in contrast, may include not having clean rows (e.g. polyculture practices may eliminate the notion of a “row” entirely) nor possessing new equipment, as this might imply an unacceptable level of materialism and/or capital intensity (e.g. Sutherland and Darnhofer 2012). Indeed, constructivist approaches like this have been shown to help us unpack changes within wheat production systems, allowing us to look beyond simple economic motivators (Rosenzweig, Carolan, and Schipanski 2019).

Drawing on constructivism to compliment a structural view of just transitions also provides an opportunity to decenter conventional views of markets and the economy, allowing

for an interrogation of economies as *moral* economies. The concept of moral economy acknowledges that “all economic institutions are founded on norms defining rights and responsibilities that have legitimations [whether reasonable or unreasonable], require some moral behaviour of actors, and generate effects that have ethical implications” (Sayer, 2005: 261). The point made by this framework is to emphasize that markets are not just embedded within culture, as Granovetter (1985) argues. Rather, markets operate thanks to (often-unspoken) normative principles, such as according to definitions of what good food and good farming ought to look like, realizing that those definitions are highly contested depending on who is being asked about them (e.g., rural farmers or urban consumers) (Carolan 2020).

The way that farmers view their connection to others and broader structural processes often reflects neoliberal narratives which individualize views of autonomy, creating dependencies on capital and structures of capital, and limit collective action aimed at emancipatory and environmental change (Stock et al. 2014). As others have described, transitions require the construction of shared visions of food system issues and relevant actors which can then work to be embedded in policies and public action (Bui et al. 2016). The emphasis then is on how to enroll sometimes spatially and socially distant actors, with often conflicting views of what good food and farming involves, into projects such as just food system transitions.

This work attempts to enroll the views of farmers into discussions of just transitions by examining barriers and opportunities wheat farmers experience when transitioning to organic wheat production. Barriers and opportunities are viewed through a structural constructivist framework which helps us analyze how the effectiveness of work aimed at structural level changes (e.g. policies such as the Green New Deal and the Good Food Purchasing Program) is related to how structures are also constructed through the lived experiences (e.g. farmer identity, norms, values, etc). Put another way, we examine farmer experiences through a constructivist lens, which then informs a discussion about how farmers may respond to proposed structural changes.

4 Methods

The data we draw on was collected as part of a larger project aimed at modelling the impacts of urban food system policy changes on rural development (Jablonski et al. 2019). One piece of this research, which we focus our analysis upon, included the socio-cultural and economic dimensions of how rural producers would respond to urban policies which incentivize the procurement of local foods as well as those certified by programs which prioritize various environmental, social, and economic sustainability goals. Transitioning is explicitly and/or implicitly within these policies and certifications. Over the course of this research, various themes arose which inspired us to analyze our data through the lens of sustainability and just transitions frameworks. Specifically, we began examining our data and entering the field with new questions aimed at understanding the forms of wheat farmer meaning and experience that contribute to barriers and opportunities to just transitions. In this way, our research was iterative and grounded (Glaser and Strauss 2012).

As part of this research, we conducted one focus group with organic wheat producers ($n=5$), a listening session with conventional wheat growers ($n=16$), fifteen interviews with both primarily conventional ($n=7$) and organic wheat producers ($n=8$), and attended one organic

producer annual conference where rigorous notes were taken in wheat producer sessions. Interviews and focus groups were conducted with semi-structured guides which included open-ended questions about farm history and economic, socio-cultural, policy, and environmental barriers and opportunities to transitioning to organic wheat production. The listening session with conventional growers contained similar topics of discussion, especially focused upon sensitizing us to conventional grower perspectives before entering the field to conduct interviews. The interviews continued until they reached theoretical saturation (Bowen 2008). Interviews lasted between 60 and 120 minutes and were mostly conducted on farms. The interviews, focus group, and listening session were recorded, transcribed, and coded using NVivo software by the lead author.

5 Just Wheat Transitions?

5.1 Practicing “environmental sustainability”: Carbon vs. chemical ethic

Organic and conventional wheat growers expressed different conceptions of the environment and different orientations toward sustainability, often in relation to their current farm practices. For instance, conventional wheat growers described taking pride in using reduced or no-till practices, often referencing the profound changes on the farm when they shifted to reduced tillage. Participants described that with no-till practices the birds returned, the soil was full of worms, and that the dust storms decreased. John discussed the importance of no-till on soil health in conventional growing like this,

"The more residue we put on there, the better the soil health, the better the retention of moisture, and the higher organic matters we start to see, that goes up, with no-till, and so therefore, you know, you're moving back 50 years in technology for organic, and you're not, you're not improving your soil, you're destroying your soil, and it's just not as good." – John, conventional grower

The importance of controlling dust was often communicated with a particular emotion in this region that still has cultural memory of the Dust Bowl of the 1930s – conventional farmers never want to go back to regular tilling and dust everywhere. Conventional growers also claimed that their carbon footprint was smaller due to less tillage (soil disturbance increases soil organic matter decomposition, increasing soil carbon emissions, and running tillage machinery increases carbon emissions from fossil fuels), indicating a carbon ethic toward sustainability. No-till management systems are reliant upon the use of chemical herbicides to control weeds, the effects of which conventional growers often argued were overstated. Many mentioned that they use much less pesticides than urban populations use in their yards¹, for example.

Organic growers asserted a no-chemical ethic toward sustainability and argued it was healthier for people and the environment to use less chemicals. Sam described his views on the use of chemicals in post-harvest storage like this,

¹ This is based on the application rate per area, but ignores the vast differences in total area and total chemical applied.

"I found out conventional farmers spray it with a pesticide right when they put it in the bin and I just think, man, does the public know? You know what they don't know doesn't hurt 'em, but, I just think that to me, if I could eat organically, I would." – Sam, organic grower

As a result of not using chemicals to control weeds, organic growers till more than conventional growers. When asked about the carbon impacts in comparison to conventional wheat growers, they claimed that while they travel over their land more, they need less land than conventional operations to be financially viable, resulting in a negligible difference in carbon emissions. However, some organic growers described how it would actually make more sense both environmentally and economically to be able to do concentrated sprays to control weeds with lower tillage, but that this would violate organic certification. These differences in perceptions of sustainability highlight common trade-offs between environmental metrics that are rarely addressed within certification and labeling programs.

The difference between these orientations toward environmental sustainability and transitioning toward organic are also often related to characteristics of a farmer's particular bioregion. For instance, some growers described being better positioned to access manure due to proximity to ranches and feedlots, manure being necessary for organic nutrient management and is often more readily found in particular regions. Farmers also described the importance of precipitation patterns, soil types, and temperatures in shaping the protein levels of wheat grain – something of great importance to bakers who like high protein wheat because it rises better. Protein levels tend to increase with increasing nitrogen availability (via manure or fertilizer applications), but they can also rise in low rainfall years when yields are limited by water and nitrogen becomes more concentrated in the wheat grains. Having good protein levels are especially important to conventional growers because the premiums are more critical to their business plan, whereas organic growers still get an attractive premium if they fall below protein thresholds, making it easier for them to be less selective about biophysical characteristics.

5.2 Policy and certification interactions

Landscape level policies and the adoption of certifications can have unintended implications for transitioning to organic. Producers described one policy that aids transitioning in unexpected ways – the Conservation Easement Program (CRP). This program pays farmers to remove land from production and plant perennial plant species that have beneficial environmental impacts. Farmers described a fairly common practice of taking land out of CRP and tilling up the perennial plant community to use it for organic production. This is due to the USDA requirement of three years of no chemical use on land before it can pass the requirements for producing and marketing USDA organic certified crops. By sitting fallow without external inputs, CRP land takes less resources to transition to organic. For some, conventional wheat prices were seen as not paying enough to take land out of CRP. Farmers may buy CRP land to put into organic production, or sometimes described the potential of rotating between CRP, organic, and conventional as a way to control the weeds that are more difficult to control with the no chemical requirement of organic certification. As Fred put it,

“Well yeah, we have some neighbors down here, they broke some CRP out, and then organic, and they're gonna keep it organic as long as they can until they develop these weed problems, and then they'll go to conventional.” – Fred, conventional grower

These dynamics mean that organic certification requirements, along with attractive premiums, may be actually leading to an overall pattern of transitioning CRP land to organic production, an unintended outcome of the CRP policy with potentially negative environmental consequences for soil erosion and carbon emissions.

Crop insurance is another policy mechanism that can influence transition decisions. The relative adoption of crop insurance by producers has increased over the past 20 years due to federal subsidies of crop insurance premiums and it is now one of the primary risk management programs subsidized by the federal government. Previous research has suggested, though with varying levels of support, that crop insurance programs influence producer decisions, such as crop choice and input intensity, and can disincentivize the adoption of conservation practices (Claassen, Langpap, and Wu 2017; Goodwin and Smith 2003). In addition, the structure of crop insurance programs can disincentivize transitions due to requirements for established crop yield histories to determine baseline rates as described by Greg,

“...we had to go without crop insurance for 3 years while we built our bushels, meaning in crop insurance the F...with um, USDA, you have to turn in all of your bushels per acre that you got each year, and it builds what they call an APH, average production rate, so until you get that 3 year average you don't get any crop insurance, so we were exposed for 3 years without any insurance and we ended up getting hail quite a bit on our wheat and it was a rough first 3 years.” – Greg, organic grower

While crop insurance programs have expanded in recent years to remove premium surcharges for organic crops and to include more diverse crop types, such as through the Whole Farm Revenue Protection Program, these programs are newer and have less institutional knowledge and support than older programs for commodity crops (Delbridge and King 2016).

Farmers also expressed skepticism with the ability of producers to maintain premiums if all farmers transitioned to organic. Though organic premiums were described as attractive to farmers, conventional growers often characterized organic as a relatively small market that would become flooded if a larger proportion of growers transitioned. This perception of the limited market demand for organic foods implies a perceived limitation in the ability of certification programs to lead transitions.

5.3 Farm infrastructure and path-dependency

Growers also often described challenges with transition related to farm and distributor infrastructure, lack of labor and knowledge for the certification processes, and the time needed to transition. Conventional wheat growers are more quickly able to move product through the mill because trucks do not need to be cleaned, more space at mills are used for conventional, and the certainty of markets. Organic, however requires segregation practices, including

cleaning out trucks and bins if they had been used for conventional grain and organic growers reported less security in contracts. Producers described making up for some of the uncertainty by having storage bins on their farms – an added cost that is less necessary to conventional growers. Organic producers also need different implements for tilling, something that some mentioned as a barrier to transitioning.

Almost all participants described the added trouble of bookkeeping for the organic certification process. Not only do farmers have to potentially take a loss during the three-year transition time, they also have to contribute more resources to bookkeeping, and in ways that are often new to them. It tends to necessitate added labor and skills, often by women, that some farms may not have. While farmers recognized that knowledge is important to transitioning, they did not see this as a barrier due to information online and through Extension. The infrastructure and human resources necessary to transition make some farmers like Sarah feel stuck,

“We're all sunken in our investments... This is where we are, how do you get off this bus? Like I don't know how!” – Sarah, conventional grower

5.4 Economic rationalization, social construction

When producers were asked to reflect upon their growing and marketing practices, they most typically used economic explanations. This included considerations such as premiums, market stability, and sunken costs. Yet, when producers were asked about their reasons for transitioning to organic or not, conventional growers often began by describing environmental concerns such as increased tillage and defend the use of chemicals, whereas organic growers emphasized organic premiums as a motivation. This is not to imply that conventional growers are without economic concerns – market uncertainty was a significant concern. For example, one conventional grower mentioned that they may have to transition to retain the farm because of the premiums. It does suggest, however, that conventional grower norms and practices still carry more cultural currency in rural landscapes and that economic motivations can be subsumed by these.

Farmers often used language that valorized independence and economic shrewdness – this was typical across organic and conventional growers. With the increased premiums that organic receives, sometimes three to four times as much as conventional, conventional growers are pushed to forefront other considerations such as environmental concerns. Socio-cultural symbols took more time to uncover in interviews but nonetheless play important roles in practice. For example, producers described the socio-cultural influence of conventional practices by characterizing some neighbors as “good” farmers, or not, based upon how their fields look. Farmers whose fields may have more weeds are more likely to be stigmatized. One conventional grower interested in trying organic even described hiding their organic fields far from where they could be seen. An organic grower mentioned an incident where a conventional neighbor told them that their organic land would be theirs someday. They went on to provide more detail,

“Oh, you'll hear comments like ‘they're letting the bindweed get away,’ ‘they're letting the Canadian Thistle get away,’ you know, I mean there's some no-tillers,

in fact there's one right out here that their ground should've been sprayed weeks ago but yeah, but nothing will ever be said other than that they're the good ones around here you know." – Pat, organic grower

From a material perspective, conventional growers were sometimes quick to explain the stigma as having to do with weed seed drift and weed seed getting in grain elevators. Yet, farmers also described the importance of "good" farming phenomena based on field appearance, regardless of whether they were conventional or organic, but organic growers were quicker to describe feeling unfairly judged by virtue of using different growing and marketing practices from their neighbors.

Based upon analysis of our interviews and demographic information, we also found that organic growers had more socio-cultural variation in ownership or leadership, whether it be by gender, race, education, or farming background (i.e. all the primarily organic growers interviewed could be defined as socially different by one or more of these categories). This suggests that growers who have more bridging social capital (e.g. social connections across different socio-cultural groups) within and beyond their communities may be more able to withstand the stigma of transitioning to organic. Relatedly, they may also have less social capital to lose within their community in comparison to conventional growers.

Organic growers also expressed more interest in selling to urban markets and pride in telling people they are organic growers. This makes sense since organic often holds more symbolic power in urban settings. However, most producers described tension with urban populations trying to determine what they do on their farms. They also sometimes took issue with alternative urban food system practices, commonly being critical of urban gardens and farms. For example, some took issue with urban farms not being real farms due to their size, production scale, and ownership structure. Such perspectives suggest a social distance from and skepticism toward urban food system work. A number of producers also connected these dynamics to broader political dynamics where they have felt attacked.

For example, when farmers were asked about labor, they typically described that labor was not an issue and that much of it has been done by the family and one or two helpers. They have however felt pressured by questions about their labor practices, something that they often placed on urban populations. They expressed that they have cared for their workers and surrounding community. This runs against the individualist, economic rationalization they often more immediately reflected upon and is an example of how these community concerns are sometimes obscured by initial economic reflections but come up through more conversation.

Other farmer reflections suggested that it can take time to understand and adopt the values that urban populations may be seeking. A number of organic growers mentioned that while they transitioned for the premiums, over time they came to appreciate organic farming practice. For instance, many organic growers expressed pride in not using chemicals and feeling that it is healthy for the land and human health.

6 Discussion: Toward Constructive Structural Changes in Wheat Transitions

There is a lack of connectedness between (urban) consumer ideals and rural community barriers to addressing these demands. The disconnection creates challenges to transitioning, especially in ways that consider the relationship between justice and rural livelihoods. As noted

above, wheat producers face trade-offs when making management decisions—between, for instance, no-till and no-spray, between economic incentives and social pressures to be like (and to be liked by) one's ("good" farmer) peers, and between managing risk (e.g., via crop insurance) and improving soil health. Well-intended policies and practices at the consumption end of the supply chain, such as urban food plans or ethical consumption, directed at food justice-oriented and/or sustainability outcomes will continue to be difficult to actualize without considering the rural social values and practices and the complexities of defining sustainable and just transitions in the rural agricultural context. Wheat growers provide an excellent example of some of the tensions and trade-offs in policies aimed at food system transitions and need for rural experiences to be considered in policymaking processes and society more broadly.

While government regulation of the production of wheat goes back to the New Deal, there are new attempts which seek to change how food is produced, such as the Good Food Purchasing Program and the Green New Deal. The GFPP was primarily created by a group of urban stakeholders aimed at transitioning procurement practices in Los Angeles schools. The Good Food Purchasing Program (GFPP) aims to accomplish this by enacting standards to transform how public institutions procure food. GFPP standards rest upon five values – local economies, health, valued workforce, animal welfare, and environmental sustainability – which are used to rate institutional purchasing. Organic production is one of the standards by which institutions are scored for environmental sustainability and animal welfare according to the GFPP. The adoption of such programs by government institutions is argued to potentially have impact on the ability of farmers to transition to "good" practices such as organic (Jablonski et al. 2019).

Yet, as our interviews demonstrate, organic may not be perceived by farmers as having better outcomes. Incentivizing organic, from their view, may increase tillage, dust, weed seed, and break land out of conservation. This is an example of how standards may struggle to become appropriate to particular environmental contexts (Fortin 2013). Particular standards can also have tradeoffs in relation to other GFPP values. For instance, organic farmers and their practices were also often viewed as niche and many wheat farmers were concerned that if all farmers transitioned to organic, there would be a drop in premiums and therefore a decrease in economic viability. The niche label and skepticism of the benefit of organic are ways in which economic concerns contribute to the retention of conventional symbolic values (Sutherland & Darnhofer 2012), potentially creating significant barriers to procurement led strategies being able to scale-up impact in a way that competes with global market pressures. This suggests that government intervention may be needed to shape national and global markets for a realignment of symbolic values. But, like the GFPP has struggled with, what symbolic values would be prioritized and which deprioritized? And how would rural producers be involved in the policymaking process?

One proposal aimed at the national level is the Green New Deal (Ocasio Cortez 2019). Inspired by the original New Deal, this proposal aims to restructure the US economy to address inequality and improve the environment through renewable energy and efficiency programs. It has been suggested that the Green New Deal more explicitly develop its food and agriculture platform (Gurian-Sherman et al. n.d.), which, if adopted, would inevitably have impact on wheat production. This includes eleven suggestions such as re-orienting economic policies to

work for sustainable agriculture and rural communities while mitigating and adapting to climate change, enabling all farmers and farm workers (e.g. immigrants) to make a viable living, holding corporations accountable about their negative externalities, ending the flooding of international markets with the oversupply of US foods, enacting extension services aimed at agroecology and regenerative agriculture, and investments to develop regional clusters of agroecological communities. There are also proposals for there to be land reparations to socially disadvantaged farmers and making it easier for new farmers to enter food and agriculture systems.

From the perspective of wheat growers, proposals such as the Green New Deal likely bring up a number of concerns. For instance, due to the challenges our participants often had with bookkeeping and needing new equipment to transition to organic, there may be significant infrastructural barriers to enacting GND policies. These barriers are often related to the human resources within particular communities, which are also reflected in social networks and symbols of “good” farming. Indeed, the current social structure of wheat production technology can create barriers to change (Glenna et al. 2011), and stricter regulations can overly burden farmers with accountability processes to demonstrate desirable practice (Koesling et al 2012).

Our experience in the field also suggests that there may be unique opportunities and challenges to proposals which aim to provide land to socially disadvantaged new farmers. Our finding that those who were socially different (i.e. relying more on bridging social capital) may be better able to withstand the stigma of transitioning to new practices suggests that creating more social diversity in rural communities itself will make transitioning easier. Like others have found, social connections and the structure of networks play a critical role in transitioning to and remaining in particular agricultural practices (Blesh and Wolf 2014). Yet, a repeated theme for farmers we interviewed was that of tensions between urban and rural populations. These tensions already revolve around rural resistance to urban understandings of who qualifies as “socially disadvantaged”. There could be negative reactions and counter politics from rural communities if “disadvantage” is solely understood in racial, ethnic, or gender terms because rural people themselves often also feel disadvantaged. Our participants expressed concerns about urban populations determining too much of their farm practice and this may be broadened and become especially strong if policies do not engage with how rural communities often feel left behind, thereby creating reactionary politics (Wuthow 2019). This is not to suggest that farmer practices do not need change as part of a just transition. It does suggest, however, that more work can be done by policymakers, activists, and scholars to more deeply engage with the barriers and opportunities that rural farmers face in working toward a just transition.

7 Summary

Through a structural constructivist framework, our research supports others who have pushed sustainability transitions approaches to deal more with power and politics in transitions (Shove and Walker 2010; Smith et al. 2005), as well as the impact of landscape level changes on the agency of actors to transition (Berkhout et al. 2004). When working to change the food system, our findings confirm the importance of considering the processes by which policies and accountability processes are enacted (Hale, Legun, and Campbell 2020; Jablonski et al. 2020). When approaching the subject of transitions from the perspective of justice, it is essential to

build truly diverse coalitions—*diverse* not only in terms of socio-economic status, race, ethnicity, and gender but also in terms of metropolitan designation (e.g., rural and urban), commodity chain location (e.g., farmers and consumers), and associated cultural distinctions. In our empirical case, this is especially important once the contrasting moral economies at work becomes apparent, where conceptions of just (“good”) food among ethical consumers in metropolitan areas may not always immediately align with understandings of what it means to be a “good farmer” at the other end of the supply chain. How desired landscape level changes are constructed and negotiated according to transition theory and practice may be critical to the way that actors are able to build coalitions toward regime change.

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