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Negotiated Decision-making: Understanding Farmer and Processor Certification Decisions

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Abstract. The global agri-food system is governed by a variety of standards and certifications that are highly variable in their content, structure, and enforcement. Given this variability, it is crucial to understand how producers choose amongst available standards and certifications. The theory of negotiated decision-making emphasizes the interaction of structural and individual level motivations and constraints on producer decision-making. Producers negotiate multiple, often conflicting, structural motivations and constraints determined by commodity chain location and social network ties along with individual motivations and constraints determined by ideology. Drawing on ethnographic interviews with organic dairy farmers and processors in New Zealand, the theory of negotiated decision-making rejects the binary between financial and ideological motivations for certification and incorporates social network ties and commodity chain position to provide a framework for understanding producer decisions in the context of regulatory variation.

Introduction

Recently the global agri-food system has experienced the proliferation of new standards and certifications that allow producers to choose among a variety of regulations and certifiers. Producers can now 'shop' for a standard and certifier amongst standards that are highly variable in their content, structure, and enforcement. Even within the limited scope of organic agriculture, organic standards and certifiers vary widely from food-activist social movement groups to professional audit agencies. This decentralization results in significant variation in interpretation and enforcement of organic standards and a lack of transparency and accountability between consumers, producers, and certifiers (Mutersbaugh, 2002, 2004; Campbell, 2005; Schewe, 2011). In this context of multiple certifications and standards, it is important to understand both motivations and constraints that influence how farmers and processors choose to participate in agri-food certifications and standards. How do producers decide which standards and certifications to pursue? How do they differentiate amongst certifiers and standards?

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I use interviews about certification decisions with organic dairy farmers, processors, and certifiers in New Zealand to answer these questions and propose a theory of *negotiated decision-making*. Negotiated decision-making rejects the binary between financial and ideological motivations for certification and incorporates the structural constraints of social network ties and commodity chain position into understandings of decision-making. Negotiated decision-making is holistic and cyclical, with producers simultaneously moderating and renegotiating a variety of often-conflicting motivations and constraints shaped by their existing practices, ideology, market pressures, social networks, and commodity chain position. The theory of negotiated decision-making emphasizes this interaction and interdependence between structural constraints and individual motivations in determining producer decisions.

By focusing on choosing a specific certifier rather than the general question of why some farmers choose to pursue organic certification and others do not, this study demonstrates the ways in which producers balance multiple and often conflicting motivations and constraints on their certification decisions. Agri-food researchers and activists often assume that producers' certification decisions are significant because they will ultimately determine production practices. My findings and theory of negotiated decision-making suggest that reality is more complex and contradictory: producers frequently base certification decisions on existing production practices and values (individual motivations) as well as their position in the commodity chain and social network pressures (structural constraints). Choosing amongst the array of agri-food standards must be understood in the context of existing ideological commitments, market pressures, social ties, and commodity chain structure.

Choosing to Be an Organic Producer

I examine the ways in which different organic producers – dairy farmers, graziers, and processors – choose their specific organic certifier. Since the question of how producers choose amongst the variety of certifiers is relatively novel, I draw upon literatures examining producer decision-making more broadly, particularly those focused on the adoption of conservation practices or organic and/or alternative agricultural production. The question of why some farmers convert to organic or sustainable agricultural production while most do not has spawned a broad scholarly literature examining this question in different commodity, geographic, and socio-economic contexts. Studies of organic and alternative agricultural conversion draw upon several key literatures: diffusion of innovation models of information transfer, contemporary social network analysis, farm-structure models emphasizing the importance of structural constraints on the diffusion of innovations, and commodity studies stressing the diversity of actors that carry a commodity from production to consumption. This study extends this existing literature in two ways. First, I analyse the process of choosing one specific certifier amongst the variety of private agri-food standards available. Second, I introduce the importance of commodity chain position in motivating and constraining certification decisions by examining actors in different locations along the organic dairy commodity chain.

Diffusion of innovation and Social Networks

Both diffusion of innovation studies and social network analyses highlight the importance of social ties in the spread of knowledge and practices and suggest that

social networks are a primary driver of decision-making. Theories of the 'diffusion of innovations' (Fliegel and Van Es, 1983; Saltiel et al., 1994; Rogers, 2003) argue that the spread of innovation relies on the transfer of information about innovations among personal and organizational networks. This perspective focuses on the transfer of knowledge and norms among individuals and organizations and classifies individuals/organizations based on their willingness to adopt new innovations. Diffusion requires a certain amount of diversity to introduce new innovations, but this diversity can lead to conflicts and miscommunications that inhibit their adoption. Diffusion of innovation studies suggest that the transfer of knowledge amongst networks is the primary driver of producers' decisions to adopt new practices and technologies.

The importance of social networks has returned to prominence broadly in social sciences, and contemporary studies that have examined the role of social networks in the spread of conservation and alternative agricultural practices have found that social networks amongst producers significantly influence their conversion to alternative agricultural practices (Hassanein and Kloppenburg, 1995; Gerber and Hoffman, 1998; Reider, 2007). Contemporary social network analyses echo many of the findings of diffusion of innovation studies: the role of social networks in introducing individuals to innovations (Haythornthwaite, 1996) and opportunities (Granovetter, 1973, 1983; Montgomery, 1992), the importance of diverse network ties (McPherson et al., 2001), and the importance of trust in determining the effect of social network influences (Levin and Cross, 2004). Social network analysts have also demonstrated the tendency of social networks to drive conformity amongst members (House et al., 1988) and to serve as constraints on individual and organizational decision-making (Kaufman and Hall, 1989; Kilduff, 1992; Mizruchi and Stearns, 2001). As with diffusion of innovation theory, contemporary social network analysis has demonstrated the continued importance of social network ties as both motivating and constraining factors in decision-making.

I draw upon both diffusion of innovation and social network theories to examine the importance of social ties in producer and processor decision-making. I expand on this literature in two ways: first, by extending the findings of diffusion of innovation studies beyond the choice of adopting or not adopting practices or certifications and into choices amongst an array of certifiers; second, by incorporating the lessons of social network analysis that social ties can serve not only as providers of opportunities and information but also as significant constraints on the options and decisions of individuals and organizations.

Farm-structure and Commodity Systems

Farm-structure models and commodity studies both emphasize the importance of structural features beyond individual control in constraining producers' decisions; both suggest that structural features such as market pressures and regulation are a primary driver of producer decision-making. Farm-structure models extended theories of diffusion of innovations to address the importance of significant structural variation of farms such as size, capitalization, financial assets, and the presence of commodity programmes that must also be considered when determining whether they will adopt conservation practices (Napier et al., 1986; Napier and Camboni, 1988; Sommers and Napier, 1993; Napier and Tucker, 2001). The farm-structure model incorporated these structural features after early applications of the diffusion

of innovation model were relatively unsuccessful when applied to the adoption of conservation practices (Fliegel and Van Es, 1983; Nowak, 1987; Saltiel et al., 1994; Padel, 2001).

Contemporary commodity studies complement the findings of farm-structure models: individuals and organizations can only be understood fully within their position within larger commodity structures. While farm-structure models emphasized the importance of constraints that were beyond individual control, commodity systems analyses turn the lens towards those structural features within the context of specific commodities. Broadly, commodity studies, including commodity chain analysis (Gereffi and Korzeniewicz, 1994), commodity systems analysis (Friedland, 1984, 2001), and/or global value chain analysis (Gereffi et al., 2005), involves tracing a commodity from production through to consumption. Commodity studies show 'how production, distribution, and consumption are shaped by the social relations (including organizations) that characterize the sequential stages of input acquisition, manufacturing, distribution, marketing, and consumption' of a commodity (Gereffi et al., 1994, p. 2). Commodity systems analysis (Friedland, 1984, 2001) formalized one methodology of commodity studies, highlighting eight central aspects of commodity chains for analysis: 1. production practices, 2. grower organization, 3. labour, 4. science production and application, 5. marketing and distribution, 6. scale, 7. the sector and the state, and 8. commodity culture (Friedland, 2001). While this study is neither a formal commodity chain analysis nor commodity systems analysis, applying the lens of commodity studies allows for an understanding that actors in different positions in the commodity system – farmers versus processors, or cooperatives versus corporations – have unique motivations and constraints on their decisions.

While the majority of studies of alternative agricultural systems and private agri-food standards have focused on the two extreme ends of commodity chains, either farmers (e.g. Best, 2010) or consumers (e.g. Padel and Foster, 2005), a growing literature is exploring the roles and experiences of other actors in alternative or organic agri-food systems. Several studies have focused on the roles of certifiers and/or standards organizations (Rice, 2001; Mutersbaugh, 2004; Raynolds, 2004) as drivers of formalized organic and alternative agri-food systems. There is also an expanding literature examining the increasingly important role of retailers (Dolan and Humphrey, 2000; Burch and Lawrence, 2007; Hendrickson et al., 2008; Campbell, 2009; Tennent and Lockie, 2012). These and other studies of diverse actors within alternative agri-food commodity systems (Tallontire, 2000; Barrientos et al., 2003; Barrientos and Kritzinger, 2004; Barrientos and Smith, 2007) demonstrate the need to examine actors at different nodes along the commodity chain, such as the farmers, graziers, and processors I examine in this study.

Drawing from the history of diffusion of innovation and farm-structure models has unfortunately led to a bifurcation of many studies of organic or alternative agricultural conversion that diverges from early theorists' attempts to consider the importance of both structural variation and social network ties. In particular, many scholars have assumed a binary in which farmers are motivated by either ideological commitments (building from the diffusion of innovation theories) (Lockeretz and Madden, 1987; Dubgaard and Sorensen, 1988; Molder et al., 1991; Wilier and Gillmor, 1992; Hong, 1994) or economic incentives (building from farm-structure theories) (Svensson, 1991;[1] Bruckmeier et al., 1994). Schoon and Te Grotenhuis (2000) develop a typology of farmers that furthers this binary, dividing farmers into those

who are motivated by a 'moral commitment' to the environment and those who are 'pragmatically motivated' by financial incentives.

In this study, I attempt to move beyond this binary and return to the holistic focus of early farm-structure and diffusion of innovation models in my theory of negotiated decision-making. I focus on both motivations and constraints for decision-making, treating farmers and processors as experts on their own experiences, allowing me to demonstrate how individuals balance multiple, sometimes conflicting, motivations and constraints in their decisions and how those motivations and constraints are shaped by both structural features and social ties simultaneously.

Data and Methods

Between June 2008 and June 2009, I spent 12 months in New Zealand conducting semi-structured ethnographic interviews with 16 organic dairy farmers; two organic graziers; seven organic dairy processors and five dairy farmers processing and selling their own organic products; executives, staff, and auditors at the three certifiers; and experts in New Zealand's organic industry. I used quota sampling to ensure that my final sample of farmers and processors was stratified to represent all three certifiers and to include several farms and processors who either currently held multiple certifications or had changed certifiers in the past. These individuals provided particularly rich data concerning the motivations and constraints for different certifiers.

I identified farmers to interview in a number of ways: contacting individuals and farms listed in the WWOOF (Worldwide Opportunities on Organic Farms) or Organic Pathways or New Zealand Organic Register directories, attending field days and farm discussion groups, contacting farmers featured in trade publications and promotional materials, and by referral and snowball sampling. The quota sample was purposively selected and I stopped recruiting new participants only after my initial analysis gave me confidence that I had captured a theoretically relevant range of experiences. Processors were more easily contacted through reports available by the organic certifiers and marketing materials, and I was able to interview all of the currently (as of June 2009) certified organic dairy processors in New Zealand and one processor who had stopped organic production.

I analysed these interviews using an adaptation of ethnographic decision tree modelling (Gladwin, 1997; Fairweather, 1999). I coded each transcript for references to 'motivations' or 'constraints' for choosing his/her specific certifier and then created a specific thematic code that reflected the motivation/constraint being described. After I had coded all of my transcripts and notes for motivations and constraints, I then analysed the codes across certifiers to develop broader thematic codes that summarized the motivations and constraints expressed for each certifier. This method is an adaptation of Gladwin's (1997) ethnographic decision tree modelling, which involves coding ethnographic interviews in terms of three basic stages of decision-making: 'elimination criteria', 'motivations', and 'constraints' (e.g. Fairweather, 1999). To avoid limitations of the method, in particular the problematic assumption that each individual moves through the stages of decision-making sequentially, I adapted a more iterative coding technique. My adapted method allows for the possibility of multiple motivations and constraints to exist simultaneously and non-linearly, allowing me to develop the theory of negotiated decision-making.

Case and Commodity Background

New Zealand has a large dairy industry that has experienced a significant boom in both number of farms and production in recent decades (Armentano et al., 2004). New Zealand's dairy industry is pastoral, utilizing intensive rotational grazing methods and seasonal production in which the majority of dairy farms cease milking during the winter months. During this time many dairy farmers 'graze off' their herd, sending cows to a grazier who is contracted at a weekly or monthly rate to provide care and feed for the animals.

Fonterra, a cooperatively owned dairy products company that is currently the largest dairy exporter in the world, dominates the New Zealand industry (Fonterra, 2012). Following the privatization of the state-owned commodity board and the consolidation of several dairy processors during the 1990s (Le Heron and Roche, 1999), Fonterra has risen to prominence in the industry and currently processes over 90% of all milk produced in New Zealand (Fonterra, 2012). From 2005 to 2011, Fonterra actively recruited organic dairy suppliers on New Zealand's North Island with a price premium guaranteed during conversion and following certification.[2] There are also several small-to-medium competitors within the organic dairy processing sector and some organic dairy farms processing and marketing their own products directly.

This study addresses the three organic certifiers that are active in the New Zealand organic dairy industry: BioGro, AsureQuality, and DemeterNZ. The three organic certifiers are diverse in their history, institutional structure, costs, and services (Schewe, 2011). Table 1 summarizes the features of the three certifiers.

BioGro and AsureQuality both certify to the USDA National Organic Program (USDA NOP) and several other national and international organic standards. Both are also recognized within Fonterra's organic premium programme so farms with either certifier can receive a guaranteed premium price for their milk. Despite these similarities, BioGro and AsureQuality have very different institutional structures and offer different services. Importantly, BioGro identifies as an organic social movement organization and offers only organic certifications and support for organic farming. BioGro has created its own domestic and IFOAM[3] accredited organic standards, as well as certifying to external standards such as the USDA NOP. BioGro is a membership-based organization in which certified farms and processors are both 'members' and 'clients', while auditing staff are either direct employees of BioGro or hired contractors.

In contrast, AsureQuality is an auditing agency that provides a wide range of agri-food audits and certifications including all of the food safety and workplace safety audits required by the New Zealand Food Safety Authority (NZFSA). They are not limited to organics. AsureQuality is nominally a private corporation, but the New Zealand government is its only shareholder. AsureQuality's formation was the result of the privatization of some portions of the Ministry of Agriculture and Forestry in 1998 during New Zealand's rapid embrace of neo-liberalism. Certified farms and processors are 'clients' and contractors provide AsureQuality's auditing services.

DemeterNZ is the certification portion of the New Zealand Bio Dynamic Farming and Gardening Association. It is a formalization of biodynamic farming principles based on Rudolf Steiner's teachings. Biodynamic agriculture is a unique component of a broader organic community (Pfeiffer, 2008) and the Bio Dynamic Association identifies as a social movement organization committed to providing community and support for individuals pursuing sustainability. Like BioGro, DemeterNZ is a

membership-based organization including both certified farms and processors as 'members' and 'clients'. Elected members of the association provide Demeter audits and oversight. Although Demeter certification has low fees, it does not have wide market recognition. Significantly, DemeterNZ is not recognized by Fonterra's organic programme, the USDA NOP, or any other national organic standards and it is not IFOAM accredited.

Results

My theory of negotiated decision-making relies on three key findings: 1. the compatibility of both ideological and economic motivations, 2. the importance of social network connections as both motivations and constraints, and 3. the role of commodity chain location in shaping motivations and constraints for actors in different positions along the commodity chain. The following sections detail these key findings. The first two sections focus largely on the motivations and constraints of dairy farmers, while the final section introduces the distinct motivations and constraints of graziers and dairy processors.

Breaking Away from the Ideological/Economic Binary

Examining the certification histories of interviewees, I was surprised to find that seven of the nine the Demeter-certified farmers had also chosen AsureQuality to provide a secondary organic certification and several of the dairy farmers had chosen to hold multiple organic certifications. This pattern undermines the basic assumption that financial and ideological motivations are incompatible: ideologically motivated farmers were choosing Demeter certification but then also choosing a low-cost, high pay-off AsureQuality certification for financial reasons. Studies of organic farmers or alternative agricultural standards often assume that there is an unbreachable divide between farmers who are ideologically motivated and those who are financially motivated. My analysis of certification decisions by organic dairy farmers, however, demonstrates that the reality of decision-making involves balancing both motivations for each farmer. From most organic farmers' perspectives, these motivations are entirely compatible and they incorporate simultaneously both ideological and financial motivations along with a number of other motivations and constraints.

The interaction between financial and ideological motivations can be seen clearly in the population of farmers who are certified with both Demeter and AsureQuality. Demeter-certified biodynamic farmers are highly committed to the philosophy of organics and highly motivated by ideology when selecting Demeter certification, but they are motivated simultaneously by their desire to secure a price premium and minimize the financial costs of certification when selecting AsureQuality certification. If financial motivations were dominant, then we would expect farmers to abandon Demeter certification and choose only a low-cost organic certification with AsureQuality. If ideological motivations trumped all others, they would be satisfied with Demeter and not seek secondary certification. Instead, this group of farmers has maintained their Demeter certification despite a small, if any, market benefit because of a deep commitment to biodynamic principles, but they have also sought a low-cost organic certification with AsureQuality that offers direct financial incentives.

Demeter-certified farmers emphasized a strong ideological commitment to sustainability and a holistic approach that motivated them to pursue Demeter certification. For Chris,[4] this holistic focus was apparent in the Demeter audits and provided a powerful motivation for pursuing and continuing Demeter certification:

> 'The only ones that I know that actually require or would expect to dig holes is Demeter inspectors. He would always wander around with a shovel and dig holes to see what the soil is like and what the earthworms are doing. Whereas other [certifications] are saying "yes, you're using pyrethrum, that's fine. You're doing this, that's fine. This permits the USDA standards, that's fine"… it's meeting the standards.'

> 'And this is what sort of drew us to biodynamics… It's thinking, our farm is only a cog in a greater wheel. And the farm next door, and the farm next door… and so it expands out. Whereas see the organic one doesn't appear to have that connection. And what I do on my farm is actually affecting the farm next door.'

For Chris, a holistic and sustainable focus motivated him to pursue Demeter certification in addition to a mainstream organic certification with AsureQuality. Other Demeter farmers echoed the attraction of this holism. One biodynamic farmer who is also an auditor and board member at DemeterNZ said of his peers:

> 'So it's hard to say whether there is any single motivation, but I guess common to [Demeter certified farmers] is a desire to do something different from conventional, which I suppose is common to organic farmers too… But then there is another aspect, and that is the idea that the farm is an individuality, and that the farmer's task is to become the central guiding spirit of that and tie it all together. And that happens, more or less, on biodynamic farms, and it happens more or less on the organic farms, too, but it is a kind of more explicit, more conscious aim, I guess, on biodynamic farms.'

For Bill, who runs a biodynamic farm that is also USDA NOP certified with AsureQuality, Demeter fulfils his ideological commitment to sustainability better than mainstream organics:

> 'I guess I'm probably leaning more towards the biodynamic and the Demeter type standards. I believe in a vast amount of diversification for sustainability… I mean nature's multidimensional, if you like, and why do we suddenly turn around and say "yeah, we can just grow cows on this bit of dirt and that's it".'

For these biodynamic farmers, Demeter certification offers a proactive, holistic approach to organic farming that aligns with their ideology.

While biodynamic farmers have a strong ideological commitment to organic farming and environmentalism, seven of the nine Demeter certified farmers have also chosen to pursue a USDA NOP certification to ensure access to Fonterra's organic price premium. Of the seven biodynamic farmers who have chosen to pursue a secondary certification, all have chosen AsureQuality over BioGro as their certifier. All cite financial considerations as their primary motivation for this decision. The financial motivations to certify with AsureQuality encompass both cost and premium incentives. Based on cost estimates provided by both BioGro and AsureQuality, USDA NOP certification through AsureQuality costs dairy farmers, on average,

$100–600 less for initial certification and $200–700 less for annual auditing fees than certification with BioGro. With average annual returns of only approximately $300 per cow (Dexcel, 2003), this difference in certification and auditing costs between BioGro and AsureQuality is substantial, particularly for small farms. Every farmer currently certified or considering certification with AsureQuality cited low certification cost as the primary motivation. Bill, who runs a small Demeter and AsureQuality certified farm, said he chose AsureQuality over BioGro because:

> 'BioGro wanted money, more money off you. It was mainly a monetary thing… We're only a small operation, and [BioGro has] more of those fees, that all comes out of the bottom line basically.'

Others also put it bluntly when I asked why they had chosen AsureQuality as their certifier. John, a biodynamic farmer who runs a medium-sized herd and operates a cooperative cheese company, said: 'It was cheaper than BioGro.' His neighbour Kingston, also a biodynamic farmer who chose AsureQuality as their organic certifier, said simply: 'Why AsureQuality over BioGro? Um, price.' This straightforward evaluation of the cost of certification motivated these highly committed, ideologically oriented biodynamic farmers to select AsureQuality to provide their organic certification. Financial incentives did not override or eliminate their principles of sustainability and holism; instead, they balanced these different incentives and maintained their Demeter certification while also securing a low-cost organic certification.

A guaranteed price premium offered by Fonterra provided further financial incentives to pursue certification with AsureQuality. In order to secure a contracted premium rate with Fonterra, farms must hold organic certification with either AsureQuality or BioGro. The desire to access the guaranteed price premium motivated many farmers to formalize certification with AsureQuality. Daniel, a Waikato-area biodynamic farmer, told me:

> 'It was only when Fonterra started offering premiums for milk that we thought, "well, now it's worth being certified [with AsureQuality]"… Yeah, it's just the premiums. If we lost our market it wouldn't be worth it.'

John said he and his wife June chose to certify with AsureQuality, because 'We had to, to get the money from Fonterra.' Kingston, also a biodynamic farmer, said they became certified with AsureQuality:

> 'When Fonterra decided that they weren't going to pick our milk up. I mean because Demeter New Zealand, you cannot market Demeter New Zealand products overseas… So Fonterra won't pay the premium for Demeter.'

Significantly, the desire to get a premium rate does not directly privilege AsureQuality certification over BioGro certification. Fonterra recognizes both certifiers and both certifications offer the same organic price premium to farms. It is important to understand the two components of financial motivation, cost and premium, in concert with the other motivations and constraints for certification to fully conceptualize the decision of biodynamic farmers' to certify with AsureQuality.

Financial and ideological motivations for organic certification coexist and can be compatible, and for many farmers both motivations are equally valid and significant. These findings reject the financial/ideological binary and instead echo the findings of diffusion of innovation and farm-structure studies that portrayed farm-

ers as complex individuals with the capacity to balance multiple motivations and constraints on their decisions to adopt conservation practices.

Social Networks

The existing social networks of organic farmers are a primary motivation for their certification decisions. Across all three certifiers, farmers reported that the certification patterns of their friends and colleagues significantly motivated them to select and retain the same certification.

The personal networks of farmers, recommendations from friends and neighbours, and personal relationships with other BioGro-certified farmers were important motivators for seeking BioGro certification. Cooper, one North Island farmer, said:

> 'I went to a few field days, and that's how I started getting into it too. That's where it really kicked off… Then I got into a group and never looked back really. I had the support of everyone else really, which made a huge difference because we were right outside the picture there… We were all with BioGro together.'

Once Cooper joined a support group of organic farmers, that group became an important motivator in his choice of certifier. All of the members of his support group chose BioGro certification, and so did Cooper. Lachlan, a farmer who did eventually transfer certification to AsureQuality, talked of the pressure from his social network to initially certify with BioGro:

> 'I originally went with BioGro because of peer pressure. BioGro was what everyone from my organics class was using, so that's why I went with them.'

After several years, Lachlan finally felt able to transfer certification to AsureQuality without suffering the scorn of his peers.

Certifiers are also aware of the importance of social networks among farmers in choosing certifications. One BioGro executive said:

> 'The other thing that probably influences [farmers' choices] is who else they talk to. And if they talk to another organic farmer that already has certification, they may decide to go with that agency; if they are saying "Hey I get a good service from this organization".'

The demonstrated success of their peers as well as social network pressure plays a significant role in motivating many farmers to choose their certifier and simultaneously in constraining their certification choice.

Along with motivating and constraining the initial certification choice, social network ties can also make farmers less willing to transfer certification. These social network constraints must be considered along with financial and other motivations for transferring certification. Nathan, a Waikato-area farmer, said that friendships with other farmers was not only what led him to BioGro certification, but also what kept him from transferring certification to AsureQuality, even under financial stress:

> 'And somehow, [my wife] can't really remember either, we just hooked up with all these other friends at a field day in Te Awamutu. And before we knew it, we were filling out forms and signing up with BioGro… Some of

> those people going back to 1998 have just become dear friends… So that's just something else that organics has given us. And it's a thrill, it's an absolute thrill. I feel quite privileged, in fact.'

Even in the face of serious financial problems that made Nathan consider transferring certification to AsureQuality because it was lower in cost, Nathan's close friendships with other BioGro farmers have kept him from transferring certification. Lachlan, who did eventually transfer certification from BioGro to AsureQuality, said that his relationships with other BioGro farmers kept him from transferring certification for many years. Eventually, financial stress became too powerful to ignore, and Lachlan and his wife transferred certification to AsureQuality to reduce costs. Even for those farmers who did eventually transfer certification, personal networks were crucial as both motivations and constraints for initial certification decisions and constraints against transferring certification.

Personal network connections with friends, family, colleagues, and neighbours who were Demeter certified also provided a significant motivation for farmers to pursue Demeter certification. Kingston said that he first became interested in Demeter farming at a large agricultural fair:

> 'I first heard about Demeter at Mystery Creek Field Days, at the national field days one year. And we were sort of wandering around and saw the Association there and went up and talked to the bloke that was there. And we said, we've come from Auckland, and they said there's another chap from Auckland that's doing it. And we had known him but hadn't seen him for a few years… So that was a face we could relate to… Yeah, we could sort of relate to it, I guess.'

John was also strongly motivated to pursue Demeter certification by his friendship with a neighbour who was a Demeter auditor and farmer. He said that they relied heavily on their neighbours for help and support:

> 'If it wasn't for the Smiths we probably wouldn't be in it… During our first certification the Smiths came out and did a farm walk and assessed the farm. And the report they put in sort of saying how everything was I think helped us – the quickness of [certification].'

Every year the Smiths help John and June with their audit and they are also a source of practical and emotional support for the farmers.

Organic farmers and processors are heavily influenced by their social networks to select and maintain the same organic certification. As argued by both diffusion of innovation and social network frameworks, individuals' social ties, particularly with trusted peers, provide avenues for transferring information and practices, but homophily can hinder this transfer and pressures from social ties can also serve to constrain the choices of individuals.

Commodity Chain Location

Focusing solely on production, there are three major actors in the New Zealand organic dairy commodity chain: 1. farmers who intensively graze dairy cattle for milk production; 2. graziers who provide off-farm grazing for dairy cattle that are not currently producing milk (either young stock, dry stock, or during the off sea-

son); and 3. dairy processing companies who consolidate, process, and market dairy products. This section introduces the role of commodity chain location in shaping motivations and constraints on decision-making by focusing on the certification decisions of the other key actors in the commodity chain: graziers and processors. The position of organic dairy processors' and graziers' in the organic dairy commodity chain, distinct from that of farmers, provide different motivations and constraints for choosing amongst private agri-food standards. The need for market access and regulatory ease by processors leads them to be motivated by previous auditing relationships with certifiers, professionalism, and a perceived government affiliation as they choose their certification, while the smaller profit margins of graziers make it difficult to balance both financial and ideological motivations.

The mid to large organic dairy processing companies in New Zealand have overwhelmingly chosen AsureQuality to certify their facilities. While several of the companies previously held certification with BioGro prior to AsureQuality's entrance into organic certification, only two are currently using BioGro to certify their processing facilities. One of those is also certified with AsureQuality. As previously discussed, AsureQuality also provides multiple auditing services beyond organic certification. They are an auditor for the New Zealand Food Safety Authority (NZFSA) and they certify to a large number of private standards. For processors, this ability to provide multiple audits and their previous relationships with AsureQuality are invaluable motivators to pursue organic certification with AsureQuality. One processor said that after transferring organic certification from BioGro to AsureQuality,

> 'We had the same auditor even, the same auditor who does our NZFSA checks. So we've been working with him for years and when we've expanded we've basically built ourselves to his specs.'

Their previous relationship with this auditor was a powerful motivator, as was AsureQuality's ability to provide multiple audits at once:

> 'Having BioGro schedule their audits became too demanding, creating two business plans to receive the same result… It was a big juggling act. The actual audits themselves were fine, it was nothing major. We never had any problems. It was just easier when AsureQuality could do it all at once. All our NZFSA checks, I mean.'

This familiarity with AsureQuality and their ability to provide multiple audits was, according to Fonterra organic executives, their primary motivator for selecting AsureQuality as their organic certifier:

> 'All Fonterra ingredients are finally certified by AsureQuality. That has been a decision since 2002, and it was largely a commercial decision. Not that BioGro came in with a higher price or a lower price, but because AsureQuality offices were already sitting in our plants doing the other 99.5% of sanitary requirements on behalf of the government. So it just made so much sense.'

This ability to provide multiple audits and the existing professional relationships between AsureQuality and processors is a significant motivator for selecting AsureQuality organic certification for processors because of their position in the organic dairy commodity chain.

For processors, professionalism – defined by them as consistency in application of standards, responsiveness to questions, and adhering to scheduled audit appointments – was also a powerful motivator for choosing AsureQuality certification. One processor who had transferred certification from BioGro to AsureQuality said:

> '[BioGro] were disorganized and inconsistent… They were never the same about the audits and what we needed, and they never gave enough notice about when they were coming and when we were expected to do things or requirements… AsureQuality, they were professional. They were consistent and organized. They had one book, one requirement. They kept their appointments. And they had the bureaucracy and the organization.'

Processors emphasized repeatedly the importance of planning and scheduling as evidence of AsureQuality's professionalism. Dairy processing companies face a constant stream of food safety, workplace safety, environmental, and accounting audits in addition to their organic audits. For processors, AsureQuality's reliability was a motivation for certification. The opposite was true for BioGro: processors reported BioGro staff changing appointments and schedules as a significant constraint against selecting them for organic certification. A manager at one large processor summarized the difference: 'AsureQuality is a little easier to work with usually… They let us know the plans quite early.' For busy processors, there was a clear perception that AsureQuality was more professional and reliable than BioGro, and this was a significant motivator for selecting AsureQuality certification.

AsureQuality's perceived government affiliation also served as a significant motivator for processors to select their organic certification. Because of their more direct concern with market and consumer access, processors placed a stronger emphasis than farmers on this perceived government affiliation as a motivator. One processor argued that AsureQuality's close ties to the government were important for international market access:

> 'Well, they're with government aren't they? And so I believe that AsureQuality is more recognized outside of New Zealand. And so for that reason, we have it in terms of international access.'

Another executive echoed this belief that AsureQuality's quasi-government affiliation provided market access. From his perspective government standards were clearly becoming the norm in organic regulation and AsureQuality's loose government affiliation put them in line with an international trend. This belief that AsureQuality's government affiliation lent them market credibility and international recognition was a higher priority motivation for processors than farmers because of processors' position in the commodity chain concerned directly with consumer and market access.

Two organic graziers[5] I interviewed seem, on initial examination, to be the exception to the rule of coexisting ideological and financial motivations. However, I argue that in fact their decision-making illustrates the influence of commodity chain position on certification decisions and how commodity chain location structures motivations and constraints. Cooper and Hamish have both let their organic certification lapse because they perceived an incompatibility between their financial and ideological motivations. Both were previously certified with BioGro and said that they decided they would rather have no mainstream organic certification than to transfer their certifications to AsureQuality. To understand Cooper and Hamish's decisions,

we must first delve into the decisions of organic farmers who have chosen BioGro to provide their organic certification. Findings show that BioGro's institutional identity as an 'organics only' organization is a significant motivator for farmers selecting BioGro certification. One farmer expressed the importance of BioGro's commitment to organics to his certification decision:

> 'Well, at least they are passionate about what they're doing, BioGro are passionate about what they're doing… At least people in BioGro, you know, they have a genuine interest in it.

Several farmers referenced explicitly a philosophical or ideological commitment to organics as one significant motivator for selecting BioGro. For farmers, their BioGro certification decision satisfies both these ideological commitments and their desire for financial premiums from Fonterra.

In contrast, because of their position as graziers in the dairy commodity chain, Hamish and Cooper both found that BioGro certification could not reconcile their financial and ideological motivations. Recall that, based on cost estimates provided to me by both certifiers, BioGro's certification costs on average $100–600 more for initial certification and $200–700 more for annual auditing fees than AsureQuality certification. This is a clear and significant constraint against choosing BioGro certification for graziers, whose position in the dairy commodity chain provides a much smaller profit margin, making them unable to sustainably bear these costs. Ultimately, both Hamish and Cooper believed that they could not afford the financial cost of BioGro certification but that AsureQuality did not satisfy their ideological commitment. Cooper was assertive when asked whether he'd ever considered AsureQuality certification:

> 'No, we only believed in BioGro and in their certification. It is the best standard that – this is in my opinion of course – that New Zealand has. As far as I'm concerned AsureQuality – or AgQuality as it was then – just doesn't even compare.'

But this strong ideological motivation for BioGro certification ultimately could not overcome financial concerns about the high cost of BioGro certification. Because he would not transfer to AsureQuality, Cooper was forced to let his certification lapse due to economic distress, but he fervently argued that it was better to let his certification lapse temporarily than to transfer certification to the less expensive AsureQuality.

Hamish, another organic grazier, also decided to let his certification lapse because he could no longer afford the BioGro fees but does not believe in the ideological commitment of AsureQuality. Hamish tells the story of his decision-making process as an inability to balance the financial and ideological motivations for certification:

> 'But you know, our [BioGro certification] fee started off at about $500 and then, you know, changed to well over two grand. It was just ridiculous in the end… But we've been fallow for the last three years, just basically because BioGro sent us broke.'

> 'And dairy grazing is an important part of dairy, so they put us in the organic bracket so we had to pay, although we only had 30 odd dry stock, we had to pay the same amount of fees as a 500 cow dairy farm down the road. And that just totally killed us.'

Hamish was passionate about organic farming and believed that BioGro was important to New Zealand's organic farming sector; however, the high cost of BioGro fees eventually pushed him out of organic certification.

Both Hamish and Cooper were unable to reconcile their financial and ideological motivations for organic certification. However, rather than reflecting the oft-assumed incompatibility between ideological and financial motivations, their inability to negotiate these different motivations was related to their unique position as graziers in the dairy commodity chain. As graziers, their businesses provided a much smaller profit margin than milking dairy farmers or processors, but the flat-fee structure of organic certification did not take this into account. Where dairy farmers were able to reconcile their financial and ideological commitments through BioGro certification or simultaneous Demeter and AsureQuality certification, the commodity chain position of graziers did not allow those negotiations. Instead, these graziers chose a different way to reconcile their philosophical and financial motivations: lapsing certification.

Examining the certification decisions of processors and graziers as well as farmers shows the important role that commodity chain position plays in structuring the motivations and constraints on the decisions of individuals and organizations. Confirming the arguments of both farm-structure models and commodity studies, these findings show that structural features of the commodity chain beyond the control of individual actors shape their motivations and constraints when selecting amongst private agri-food standards. My theory of negotiated decision-making argues that commodity chain location and structure must be accounted for to understand the motivations and constraints for producer decisions.

Discussion

The proliferation of private agri-food standards and market-based certifications of our current agri-food system has created a marketplace of regulation in which agricultural producers can choose among a variety of voluntary or semi-voluntary standards. Further, the widespread reliance on third-party auditing means that even within the same regulation or standard, producers have a variety of certifiers to choose amongst. Developing a clear theory of producer decision-making, therefore, has empirical significance for the environmental and social outcomes of private agri-food standards and significant theoretical implications for understanding the role of the state and market in governing environmental and social goods. The theory of negotiated decision-making provides a framework for understanding producer decisions in this context of regulatory uncertainty: producers' decisions are holistic and cyclical, balancing a variety of often conflicting motivations and constraints determined by ideology, financial demands, social ties, and commodity chain structure.

In this study I have presented three arguments about producers' motivations and constraints for choosing organic certifiers. First, the binary between financial and ideological motivations for certification is false. Instead, these motivations coexist and are balanced with other motivations and constraints. Second, social network connections with peers and colleagues provide significant motivation and constraints during certification decisions. Third, the motivations and constraints for certification decisions are structured by different positions along the commodity chain.

While this case study focuses on the experiences of producers within New Zealand's organic dairy industry, these findings hold relevance for the agri-food system

and private agri-food standards more broadly. Organic dairy production in New Zealand is heavily export dependent, with over 95% of dairy product exported (Armentano et al., 2004). This makes internationally recognized agri-food standards of incredible importance and makes New Zealand dairy an exemplary case in which to examine the variety of agri-food standards. While there are some features of New Zealand's dairy industry that are unique, such as seasonal production and the reliance on rotational grazing, the issues at the core of this case study – financial and ideological pressures, social networks amongst producers and certifiers, and the diversity of commodity chain locations – are not unique to New Zealand or to organic dairy production. Most importantly, neither is the variety of agri-food standards and certifiers. The current agri-food system is governed by an increasingly diverse array of standards and certifiers that cover virtually all commodity systems and nations. In this context, the experiences of New Zealand organic dairy producers choosing amongst the variety of certifiers hold insight for other agri-food producers as they also 'shop' amongst the private and governmental, voluntary or semi-voluntary standards and certifications available.

Together, these findings inform the theory of negotiated decision-making: decision-making is a complex process in which individuals and organizations balance multiple, often conflicting, motivations and constraints at both the structural and individual level. In this case, the certification decisions of organic producers are shaped simultaneously by ideological commitments to sustainability, financial imperatives to survive in a market economy, information and demands from social network connections, and the unique pressures of their position within the organic dairy commodity chain. This understanding of the complexity of decision-making builds on the findings of a wide variety of literatures to offer insight into how producers make decisions within a neo-liberal agri-food system in which the boundaries between state and market, regulation and standards, are increasingly blurred. The theory of negotiated decision-making should serve as a lens for future researchers as they approach producer decision-making to help researchers conceptualize the ways in which both individual-level and structural-level motivations and constraints shape producer decisions.

Many studies that have addressed the question of what motivates farmers to pursue organic or sustainable agriculture have assumed a fundamental incompatibility between financial and ideological motivations. Whether implicit or explicit, this assumption severely limits our understanding of producer decision-making. Instead, producers are negotiating and renegotiating these motivations constantly, seeking balance and compatibility amongst multiple motivations and constraints. The financial/ideological binary is both limiting and inaccurate for understanding the complex motivations and constraints on decisions about alternative agricultural production and private agri-food standards. Recognizing that producers balance both financial and ideological motivations and constraints, along with a number of others, returns to the more holistic focus of early diffusion of innovation and farm-structure models that recognized the complexity of decisions about the adoption of conservation practices and shows that these lessons still hold truth in a neo-liberal agri-food system.

The certification decisions of both farmers and processors are also significantly motivated and constrained by their social network ties. Connections with friends, neighbours, and peers are a key motivation across all of the private agri-food standards and certifiers. The continued importance of social ties echoes the findings of

diffusion of innovation and social network theories. Social networks amongst producers could become a powerful tool in the expansion of organic and sustainable agriculture if certifiers, standards organizations, and/or social movement groups are able to mobilize the pull of friends, neighbours, and peers. The importance of their social networks to choosing and sustaining an organic certification underscores the importance of farmer-to-farmer mentoring and discussion groups in spreading organic farming and extending the reach of private agri-food standards. More studies are needed to understand the role of networks in sustainable agriculture and private agri-food standards and to extend existing social network theories and methodologies into agri-food systems.

Many studies of organic certification and alternative agricultural systems have focused on the experiences and motivations of farmers to the exclusion of actors elsewhere along commodity chains. In reality, diverse positions in the production system lead to diverse motivations and constraints. The current agri-food system is increasingly dominated by processed and prepared foods and it is crucial that we continue to develop a better understanding of the unique motivations and constraints for decisions by food processors and other actors in agri-food commodity chains. In this case, market access motivates processors because they are responsible for finding consumer markets and processors are likely to choose organic certification with a certifier with whom they have a pre-existing relationship. This is of concern because it could mean less stringent enforcement if personal friendships between auditors and processors interfere with consistent application of standards. More studies of actors along organic and alternative agri-food commodity chains are needed to better understand their unique motivations and constraints and their implications for the environmental and social outcomes of private agri-food standards.

Decisions about organic certification and private agri-food standards involve the complex negotiating and balancing of multiple motivations and constraints at both the structural and individual level. Concerns for the future of sustainable agriculture and the consistency of private agri-food standards and certification mean that we need many more studies that examine the certification decisions of farmers and especially processors and other actors in agri-food commodity chains. These findings and the theory of negotiated decision-making have implications for decisions not just about organic certification, but also other agri-food standards and practices. If we do not first understand the complexity of producers' motivations and constraints, we cannot successfully address many of the social and environmental problems at the core of our agri-food system and agri-food standards.

Notes

1. For an English-language discussion, see Lohr and Salomonsson, 2000.
2. In August 2011, Fonterra announced that they would be restructuring significantly their organic programme, reducing the amount of organic milk they would buy at a premium. It is unclear what impact this will have on existing and future organic dairy producers and processors.
3. IFOAM is the International Federation of Organic Agriculture Movements. It is an international umbrella organization for organic agriculture, with 750 member organizations from 108 countries. IFOAM has an influential (non-governmental) international organic standard and offers accreditation for independent organic standards through an equivalency programme (Bowen, 2004).
4. The names used here are all pseudonyms.
5. Recall that most New Zealand dairy farms cease milking during winter, sending cattle to graziers for contracted care. Graziers have much smaller profit margins than milking dairy farmers; their land is often marginal and most of them also receive income from off-farm.

References

Armentano, L., Dobson, W., Jesse, E. and Olson, N. (2004) *The Dairy Sectors of New Zealand and Australia: a Regional Study*, Discussion Paper 2004–3. Madison, WI: Babcock Institute for International Dairy Research and Development.

Barrientos, S. and Kritzinger, A. (2004) Squaring the circle: global production and the informalization of work in South African fruit exports, *Journal of International Development*, 16(1), pp. 81–92.

Barrientos, S. and Smith, S. (2007) Do workers benefit from ethical trade? Assessing codes of labour practice in global production systems, *Third World Quarterly*, 28(4), pp. 713–729.

Barrientos, S., Dolan, C. and Tallontire, A. (2003) A gendered value chain approach to codes of conduct in African horticulture, *World Development*, 31(9), pp. 1511–1526.

Best, H. (2010) Environmental concern and the adoption of organic agriculture, *Society and Natural Resources*, 23(5), pp. 451–468.

Bowen, D. (2004) *Current Mechanisms That Enable International Trade in Organic Products*. Paper Presented at International Task Force on Harmonization and Equivalence in Organic Agriculture, Geneva, 20–21 October.

Bruckmeier, K., Grund, H., Symes, D. and Jansen, A.J. (1994) Perspectives for environmentally sound agriculture in East Germany, in: D. Symes and A. Jansen (eds) *Agricultural Restructuring and Rural Change in Europe*. Wageningen: Wageningen Agricultural University, pp. 180–194

Burch, D. and Lawrence, G. (eds) (2007) *Supermarkets and Agri-food Supply Chains: Transformations in the Production and Consumption*. Northampton, MA: Edward Elgar Publishing.

Campbell, H. (2005) The rise and fall of EurepGap: European (re)invention of colonial food relations?, *International Journal of Sociology of Agriculture and Food*, 13(2), pp. 15–34.

Campbell, H. (2009) Breaking new ground in food regime theory: corporate environmentalism, ecological feedbacks and the 'food from somewhere' regime?, *Agriculture and Human Values*, 26(4), pp. 309–319.

Dexcel (2003) *Economic Survey of New Zealand Dairy Farmers, 2001–2002*. Hamilton: Dexcel.

Dolan, C. and Humphrey, J. (2000) Governance and trade in fresh vegetables: the impact of UK supermarkets on the African horticulture industry, *Journal of Development Studies*, 37(2), pp. 147–176.

Dubgaard, A. and Sorensen, S.N. (1988) *Organic and Bio-organic Farming In Denmark: A Statistical Survey*, Report 43. Copenhagen: Statens-Jordbrugsokonomiske Institute.

Fairweather, J.R. (1999) Understanding how farmers choose between organic and conventional production: results from New Zealand and policy implications, *Agriculture and Human Values*, 16(1), pp. 51–63.

Fliegel, F.C. and Es, J.C. van (1983) The diffusion-adoption process in agriculture: changes in technology and changing paradigms, in: G. Summers (ed.) *Technology and Social Change in Rural Areas*. Boulder, CO: Westview Press, pp. 13–28.

Fonterra (2012) *Fonterra: Leading the Way*. Published online <http://www.fonterra.com/wps/wcm/connect/fonterracom/fonterra.com/our+business/supplying+fonterra/why+fonterra/fonterra+leading+the+way>, accessed 22 February 2012.

Friedland, W.H. (1984) Commodity systems analysis: an approach to the sociology of agriculture, in: H.K. Schwarzweller (ed.) *Research in Rural Sociology and Development*, vol. 1. Greenwich, CT: JAI Press, pp. 221–235.

Friedland, W.H. (2001) Reprise on commodity systems methodology, *International Journal of Sociology of Agriculture and Food*, 9, pp. 82–103.

Gerber, A. and Hoffman, V. (1998) The diffusion of eco-farming in Germany, in: N.G. Röling and M.A.E. Wagemakers (eds) *Facilitating Sustainable Agriculture: Participatory Learning and Adaptive Management in Times of Environmental Uncertainty*. Cambridge: Cambridge University Press, pp. 134–152.

Gereffi, G. and Korzeniewicz, M. (eds) (1994) *Commodity Chains and Global Capitalism*. Westport, CT: Greenwood.

Gereffi, G., Korzeniewicz, M. and Korzeniewicz, R.P. (1994) Introduction: global commodity chains, in: G. Gereffi and M. Korzeniewicz (eds) *Commodity Chains and Global Capitalism*. Westport, CT: Greenwood, pp. 1–14.

Gereffi, G., Humphrey, J. and Sturgeon, T. (2005) The governance of global value chains, *Review of International Political Economy*, 12(1), pp. 78–104.

Gladwin, C.H. (1997) *Ethnographic Decision Tree Modeling*. Thousand Oaks, CA: Sage Publications.

Granovetter, M.S. (1973) The strength of weak ties, *American Journal of Sociology*, 78(6), pp 1360–1380.

Granovetter, M. (1983) The strength of weak ties: a network theory revisited, *Sociological Theory*, 1(1), pp. 201–233.

Hassanein, N. and Kloppenburg, J.R. (1995) Where the grass grows again: knowledge exchange in the sustainable agriculture movement, *Rural Sociology*, 60(4), pp. 721–740.

Haythornthwaite, C. (1996) Social network analysis: an approach and technique for the study of information exchange, *Library and Information Science Research*, 18(4), pp. 323–342.

Hendrickson, M., Wilkinson, J., Heffernan, W.D. and Gronski, R. (2008) *The Global Food System and Nodes of Power*. Published online <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1337273>, accessed 14 May 2012.

Hong, C.W. (1994) *Organic Farming and the Sustainability of Agriculture in Korea*, Report 388. Taipei: Food and Fertilizer Technology Center, Asian and Pacific Council.

House, J.S., Umberson, D. and Landis, K.R. (1988) Structures and processes of social support, *Annual Review of Sociology*, 14, pp. 293–318.

Kaufman, K.J. and Hall, L.A. (1989) Influences of the social network on choice and duration of breast-feeding in mothers of preterm infants, *Research in Nursing and Health*, 12(3), pp. 149–159.

Kilduff, M. (1992) The friendship network as a decision-making resource: dispositional moderators of social influences on organizational choice, *Journal of Personality and Social Psychology*, 62(1), pp. 168–180.

Le Heron, R. and Roche, M. (1999) Rapid reregulation, agricultural restructuring, and the reimaging of agriculture in New Zealand, *Rural Sociology*, 64(2), pp. 203–218.

Levin, D.Z. and Cross, R. (2004) The strength of weak ties you can trust: the mediating role of trust in effective knowledge transfer, *Management Science*, 50(11), pp. 1477–1490.

Lockeretz, W. and Madden, P. (1987) Midwestern organic farming: a ten-year follow-up, *American Journal of Alternative Agriculture*, 2(2), pp. 57–63.

Lohr, L. and Salomonsson, L. (2000) Conversion subsidies for organic production: results from Sweden and lessons for the United States, *Agricultural Economics*, 22(2), pp. 133–146.

McPherson, M., Smith-Lovin, L. and Cook, J.M. (2001) Birds of a feather: homophily in social networks, *Annual Review of Sociology*, 27, pp. 415–444.

Mizruchi, M.S. and Stearns, L.B. (2001) Getting deals done: the use of social networks in bank decision-making, *American Sociological Review*, 66(5), 647–671.

Molder, P.J, Negrave, P.D. and Schoney, R.A. (1991) Descriptive analysis of Saskatchewan organic producers, *Canadian Journal of Agricultural Economics*, 39(4), pp. 891–899.

Montgomery, J.D. (1992) Job search and network composition: implications of the strength-of-weak-ties hypothesis, *American Sociological Review*, 57(5), pp. 586–596.

Mutersbaugh, T. (2002) The number is the beast: a political economy of organic-coffee certification and producer unionism, *Environment and Planning A*, 34(7), pp. 1165–1184.

Mutersbaugh, T. (2004) Serve and certify: paradoxes of service work in organic-coffee certification, *Environment and Planning D: Society and Space*, 22(4), pp. 533–552.

Napier, T.L. and Camboni, S.M. (1988) Attitudes toward a proposed soil conservation program, *Journal of Soil and Water Conservation*, 43(2), pp. 186–191.

Napier, T.L. and Tucker, M. (2001) Use of soil and water protection practices among farmers in three Midwest watersheds, *Environmental Management*, 27(2), pp. 269–279.

Napier, T.L., Camboni, S.M. and Thraen, C.S. (1986) Environmental concern and the adoption of farm technologies, *Journal of Soil and Water Conservation*, 41(2), pp. 109–113.

Nowak, P.J. (1987) The adoption of agricultural conservation technologies: economic and diffusion explanations, *Rural Sociology*, 52(2), pp. 208–220.

Padel, S. (2001) Conversion to organic farming: a typical example of the diffusion of an innovation?, *Sociologia Ruralis*, 41(1), pp. 40–61.

Padel, S. and Foster, C. (2005) Exploring the gap between attitudes and behaviour: understanding why consumers buy or do not buy organic food, *British Food Journal*, 107(8), pp. 606–625.

Pfeiffer, E. (2008) *Biodynamics: Three Introductory Articles*. Junction City, OR: Biodynamic Farming and Gardening Association.

Raynolds, L.T. (2004) The globalization of organic agro-food networks, *World Development*, 32(5), pp. 725–743.

Reider, R. (2007) *Growing Organically?: Human Networks and the Quest to Expand Organic Agriculture in New Zealand*, Report 293. Lincoln: Agribusiness and Economics Research Unit, Lincoln University.

Rice, R.A. (2001) Noble goals and challenging terrain: organic and fair trade coffee movements in the global marketplace, *Journal of Agricultural and Environmental Ethics*, 14(1), pp. 39–66.

Rogers, E.M. (2003) *Diffusion of Innovations*, 5th edn. New York: Free Press.

Saltiel, J., Bauder, J.W. and Palakovich, S. (1994) Adoption of sustainable agricultural practices: diffusion, farm structure, and profitability, *Rural Sociology*, 59(2), pp. 333–349.

Schewe, R.L. (2011) Two wrongs don't make a right: state and private organic certification in New Zealand dairy, *Environment and Planning A*, 43(6), pp. 1421–1437.

Schoon, B. and Grotenhuis, R. te (2000) Values of farmers, sustainability and agricultural policy, *Journal of Agricultural and Environmental Ethics*, 12(1), pp. 17–27.

Sommers, D.G. and Napier, T.L. (1993) Comparison of Amish and non-Amish farmers: a diffusion/farm-structure perspective, *Rural Sociology*, 58(1), pp. 130–145.

Svensson, I. (1991) *Statligt stod till alternativ odling 1989 – en enkatundersokning*, Report 7. Uppsala: Swedish University of Agricultural Sciences.

Tallontire, A. (2000) Partnerships in fair trade: reflections from a case study of Cafe Direct, *Development in Practice*, 10(2), pp. 166–177.

Tennent, R. and Lockie, S. (2012) Production relations under GLOBALG.A.P: the relative influence of standards and retail market structure, *Sociologia Ruralis*, 52(1), pp. 31–47.

Wilier, H. and Gillmor. D.A. (1992) Organic agriculture in the Republic of Ireland, *Irish Geography*, 25(2), pp. 149–159.