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Keeping the wineglass full: Exploring the intersection of sustainable viticulture and sustaining winegrower legacy in Lodi, California

Matthew Hoffman
Iowa State University

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**Keeping the wineglass full: Exploring the intersection of sustainable viticulture and
sustaining winegrower legacy in Lodi, California**

by

Matthew Brenden Hoffman

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
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Program of Study Committee:
Cornelia B. Flora, Major Professor
Carmen Bain
Terry Besser
Jerry DeWitt
Jan Flora

Iowa State University

Ames, Iowa

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Introduction

Agricultural communities produce sustenance for society through cultivating the land, and they produce sustenance for themselves, economically, through interacting with the complex economic and social systems. This means that these communities exist at the point of convergence of the environment, the economy, and society. In order to sustain their livelihoods, in the long-run, agricultural communities must successfully balance their interface with all three. The sustainable agriculture model attempts to accomplish this balance. This thesis broadly explores one community of winegrape growers (winegrowers) as they attempt to collectively sustain their livelihoods by employing the sustainable agriculture model. Through in-depth interviews with fourteen organizationally defined sustainable winegrowers participating in the Lodi Rules for Sustainable Winegrowing third-party certification program, this thesis articulates the actual and potential role sustainable viticulture plays in sustaining the livelihoods of winegrowers in Lodi, California.

The unassuming town of Lodi is of particular interest since Lodi's winegrowing community has blazed a trail in the field of sustainable viticulture. Lodi winegrowers have established some of the most robust sustainability programs in California, and arguably in the country. Among other seminal efforts, Lodi growers have established California's first self-tax funded regional winegrape commission, the state's first sustainable viticulture workbook, and the state's first sustainable viticulture certification program: the Lodi Rules.

My interpretations of Lodi's achievements are couched in the community capitals framework, and I present five emergent themes. I start with a growers' definition of sustainable viticulture. What does it mean to be sustainable to Lodi Rules growers? Providing their children with the option of winegrowing as an attractive and economically viable livelihood is the dominant themes in grower definitions. The social and natural elements are seen as important resources to be stewarded. Grower definitions set the tone for the breadth of this thesis, and are presented first. Second, I discuss the topic of winegrower legacy. Sustaining their winegrower legacy is their core motivation, and economic viability is paramount to this objective. Third, I attempt to shed light on the question of "Why Lodi?" by drawing on the concept of social capital to describe why Lodi's winegrowing community

has established California's and the nation's first sustainable viticulture programs. Next, I take a look at growers' motivations for creating the Lodi Rules. These motivations include economic gain but, more interestingly, go beyond it to include recognition for winegrape quality. They believe the prices they have historically received for their winegrapes do not reflect the true quality. The Lodi Rules is an effort toward increasing market value of their winegrapes and wine, and gaining fair recognition. Finally, I identify certain human capital qualities which encourage the adoption of sustainable viticulture on an individual level, but the bulk of the human capital discussion argues that participation in the Lodi Rules program enhances sustainable viticulture human capital. Sustainable viticulture human capital has the potential to provide Lodi growers with diverse benefits, especially in regards to securing economic viability through increased quality and value.

Literature Review

Sustainable viticulture and grower livelihoods in California agriculture

In an essay discussing the intersection of sustainable agriculture and agricultural communities, Marty Strange wrote: “To be sustainable, agriculture must sustain the people who are part of it... The objective of an agriculture that is sustainable must be to nourish a renewable pool of human land stewards who earn a healthy living by farming well” (1984: 115). Strange is arguing that in order for agriculture to be sustainable, it must support agricultural livelihoods by sustaining the means to securing the necessities of life.

Unfortunately, conventional industrial agriculture’s monolithic presence in California’s Central Valley has been identified as a detriment to agricultural community well-being (Goldschmidt 1978). Conventional agriculture may fall short, but sustainable agriculture can have the opposite effect and can improve the sustainability of these communities (Flora 1990; Strange 1991; Hassebrook 1990).

In spite of the theoretical and philosophical overlap between sustainable agriculture and sustaining farmer livelihoods and the communities they comprise, little research has been conducted exploring this explicit relationship in California agriculture. However, the need for such research has been identified. This thesis begins to meet this need.

Brodt and colleagues (2006) noted that many of California’s sustainably oriented farmers and agencies are interested in issues related farmer livelihoods and communities and participate in efforts whose goals are within the relevant spheres, but explicit connections between the two are rarely made. The authors conclude that future research linking the two more explicitly will lead to a greater understanding and effective practice of agricultural sustainability. Furthermore, Brodt *et al.* noted that the commodity and export-oriented market which dominates California’s Central Valley, including winegrapes, is the biggest barrier to establishing this link. These economies conflict and often subvert value-added and local agrifood system efforts. Breaking the mold of the commodity export market is the Central Valley’s largest obstacle to establishing localized and value-added agriculture markets.

The link between sustainable viticulture and the well-being of California agricultural communities has also been noted as an unexplored research area (Warner 2007b). While the practices espoused by sustainable viticulture are designed to address environmental, social, and economic problems associated with agriculture, a growing awareness that some of these practices, either directly or indirectly, have a positive effect on the quality of winegrapes and wine made from this fruit. This opens new doors for value-added agriculture.

Previous studies have explored the relationship between sustainable agriculture and community well-being in California, albeit circuitously. These studies serve as a starting point for understanding California agriculture. We know that the civic engagement of community members is an important correlate of sustainable agriculture. Lyson and Barham conclude that “agricultural sustainability thrives in localities with high levels of civic engagement” (1998: 565). Civic engagement may be necessary for the occurrence of sustainable agriculture, but each community is different and developmental strategies will need to be place-specific. The unique qualities of each community and the type of civic engagement of members and the internal and external relationships generated by community-level civic engagement, means the difference between sustainability or unsustainability (Flora 1995).

Two important concepts will repeatedly surface in this thesis and thus warrant definition. First is the concept of regional branding. Lapsley (1996) presents the concept of regional branding by posing the question “How did [Napa], representing roughly 5 percent of all California’s winegrape vineyard acreage, become synonymous with wine quality and achieve such dominance?” (1996: 2). Lapsley answers his questions by stating “The short answer is that Napa producers were leaders in defining wine quality and creating a market for such wine. As leaders they expended the initial energy – planting the vineyard, so to speak – and as leaders they reaped the harvest.” The answer is simply that Napa’s early winemakers created a Napa image, market interest, and expectation of quality. Napa winemakers then fulfilled that expectation by producing high quality Napa wines. Robert Mondavi, an early promoter of regional branding, operated from the principal that what his business was selling was more than wine; it was a vision of “the good life” (Siler 2007).

To me, a meal without wine was like a day without sunshine, and a fine bottle of wine could turn a humble meal into festive banquet. Indeed, enjoying fine wine and fine food at your family table, surrounded by your loved ones and friends, was not just a joy – it was one of the highest forms of the art of living. This was the core belief I had expounded at my winery from the very beginning. And this was the primary element of the gospel I had been preaching all across the country as we tried to educate the public and build, from scratch, a large national market for fine wines (Mondavi and Chutkow 1998: 240).

Regional branding is achieved only through collective action. Individual actions are important, but only in sum, and only when they are similar. A region comes to be known for its opulent pinot noir wine not because of one rare and exceptional vintner, but because of collective action among its winemakers to plant the variety, adopt similar viticultural practices, use similar enological technologies and techniques, and market their wines in similar price ranges. As the wine industry expression goes, “One good bottle of wine benefits everyone, one bad bottle of wine hurts us all.” Regional branding is ubiquitous in California wine marketing schemes and has recently come to include sustainability. Some regions are adding sustainability to their resume in hopes it will strengthen their reputation as a wine region by appeasing the eco values of reflexive consumers.

Second, “agroecological partnerships” have a specific meaning. Warner defines a partnership as “an intentional multi-year relationship between at least growers, a grower’s organization, and one or more scientists to extend agroecological knowledge and protect natural resources through field-scale demonstration” (Warner 2007a: 67). Agroecological partnerships are reciprocal and participatory knowledge creation and dissemination systems: knowledge producers and knowledge users are not readily separable. Agroecological partnerships are an alternative to the typical top-down or expert-to-layperson knowledge transfer system used by agricultural extension. Effective proliferation of sustainable agriculture knowledge has been successfully accomplished through agroecological partnerships, especially in California (Hassanein 1999; Klonsky et al. 1998; Warner 2007a). Because the agroecological partnership facilitate participatory learning, they cultivate an increased in human capital and long-term implementation of sustainable agriculture (Lightfoot, *et al.* 2001; Pretty 1995; Warner 2005; Warner 2008).

Sustainable viticulture in California has come about through the social networks comprising agroecological partnerships. The partnerships overlap, integrate, and are often formed by

social networks of agricultural communities. Thus, understanding the connection between sustainable viticulture and sustaining agricultural communities is truly a community-level study. As I will more comprehensively discuss later, this is the case in Lodi.

Community, the community capitals framework, legacy, and social infrastructure

Community. In this discussion of agricultural communities, we must first have a sociological handle on what a community is. The concept of community comes in many forms, and definitions vary depending on who the definer is (Hillery 1955). This study uses Flora and Flora's (2008) definition of community, which has three elements: place, social system, and common identify. Communities are groups of people rooted in a specific place and the characteristics of the place are reflected in the characteristics of the people and relationships making up the community. Other factors such as geographical boundaries -political, natural, or otherwise- can delineate one community from another and can have an effect on the communities shared sense of place and identity.

Social systems, the second element of community, can be thought of as “the organization or set of organizations through which a group of people meets its needs” (Flora and Flora 2008: 13). Social networks act as pathways for accessing all sorts of resources such as credit, food, new ideas, or technology. The scale and function of a community's social system is one of it's defining characteristics, and determines whether or not community members work together or autonomously, and it determines the nature and extent of the community's interactions with other communities and the rest of society.

Identity is the final element of community. A shared identity has a unifying function among community members, and helps community members to collaborate and agree on shared visions or goals. Sometimes shared community identity extends beyond shared geographic space, but for agricultural communities, the two are intimately linked.

Community capitals. The community capitals offer themselves as an illustrative framework to organize the complicated milieu of a community, and its various resources and opportunities. Capitals are resources, and by categorizing and interpreting them as such, they can be taken as building blocks for community development. As presented by Flora and

Flora (2008), the seven community capitals include cultural, human, social, political, natural, financial, and built capital.

Cultural capital is the perspective through which people interpret the world they live in - their world view. It can be described as the values, ways of thinking, perceptions of others, ways of acting, religion and spiritual beliefs, and customs. Cultural capital also dictates what is believed to be good or bad, what constitutes legitimate knowledge, what justifies the use of power, and what possibilities are perceived as realistic for individuals or the community.

Social capital is the structure of human interaction among and between actors that facilitate productive activities (Coleman 1998). Flora and Flora (2008) discuss social capital in the context of community development and consider social capital to be a group-level phenomenon that can be described as the structure of human interaction among and between communities that facilitate desired community change. This community-level perspective on social capital is the one used in this thesis.

Four central aspects of social capital are discussed by Pretty and Ward (2001). 1) *Relations of trust* encourages cooperation. Trust between individuals allows for resources to be channeled into constructive cooperation rather than monitoring or regulating of others' actions. When an individual trusts other group members, he or she will be more willing to invest resources into group-level activities knowing others will also contribute their fair share. 2) *Reciprocity and exchanges*, paired with trust, can lead to long-term obligatory relationships. Such relationships are helpful in cooperative activities since many hands make light work. 3) *Common rules, and sanctions*, or what Coleman (1990) refers to as the internal morality of the social system. Rules and sanctions parallel the function of trust, and enforce the function of reciprocity and exchange. Rules and sanctions give group members the confidence that their investment into the group will be matched by others, that free-riders will be checked, and that their rights will be upheld. Confidence that the rules will be enforced encourages cooperation and investment. 4) *Connectedness of networks and groups* come in many different forms. Pretty and Ward suggests five distinctions of social connectedness, but Flora and Flora's (2008) version of the same concept will be used here since it describes a similar social function and better relates to other theoretical concepts used

in this thesis. Relationships within a community are referred to as bonding social capital. These relationships can be either internal to a group or horizontal between different groups within a community. Relationships reaching outside of a community are referred to as bridging of social capital. Bridging can be horizontal from one community to another community, or vertically, from a community to resource point-sources such as government or other agencies. From a community development perspective, both bonding and bridging are needed simultaneously. The concepts of bridging and bonding of social capital, only briefly mentioned here, will be further discussed in the entrepreneurial social infrastructure section of this literature review.

Needed capitals can be accessed by a community through social capital. This aids in a community's ability for problem solving, change, inventiveness, entrepreneurialism, productivity, and may increase general community well-being by filling community needs and achieving community goals - progress.

Human capital is a measure of human potential and ability, and refers to the individual attributes of community members with the most obvious being education and training. However, interpersonal skills; self-esteem; leadership abilities; health; and knowledge of one's land, neighborhood, or town are all types of human capital. Formal education is one way of gaining human capital, as is personal experience, on-the-job training, and inheritance of folk knowledge. Human capital influences an individual's ability to earn a living and contribute to their self, family, and community.

Political capital is defined as the ability of a group or an individual to allocate available resources, particularly power and financial capital. Groups with political capital are able to influence the rules and regulations in favor of a given desirable end. Political capital is not limited to those in government positions. It can be possessed by respected or socially connected families, charismatic individuals, civic organizations, or religious groups. By recognizing political capital within a community we can understand how change in communities is brought about and identify who is driving the change.

The four capitals presented above, cultural, social, human, and political, have human or social attributes, and are intangible. The remaining capitals: natural, financial, and built; are categorized together for their material or non-human qualities.

Natural capital refers to natural resources and amenities. For agricultural communities, natural capital includes fertile soil, irrigation water, natural biodiversity including beneficial insects and other predators, and a climate favoring the chosen crops. In the case of agrotourism, scenic pastoral or natural landscapes are also natural capital. Humans are influenced by and have an influence on their natural capital, and an intimate relationship exists between farmers and their natural capital. The connection between natural capital and farmer livelihoods is more prominent than with most occupations, since farmers' livelihoods directly interface with and depend on their natural capital. With this in mind, the importance of sustaining natural capital is clearly linked to sustaining farmer livelihoods and agricultural communities.

Financial capital is defined as “resources that are translated into monetary instruments that make them highly liquid, that is, able to be converted into other assets” (Flora and Flora 2008: 175). This definition means financial capital includes but is not limited to cash on hand. Debt capital, equity, tax revenue, and grants are also types of financial capital. One important attribute of financial capital is that when invested, it can increase the level of other capitals. For example, the purchase of more modern machinery increases the equity of a manufacturing business, increases efficiency, may increase human capital through training, and may increase long-term net profit.

Built capital can be thought of as permanent physical infrastructure that facilitates community activity and the productive engagement of other capitals. Roads, bridges, irrigation channels, barns, tractors, and wineries are good examples of built capital, both public and private. Built capital alone cannot increase the well-being of a community. Rather, built capital is a tool that must be appropriately used by people if it is to aid in development.

The community capitals are not mutually exclusive. They overlap one another and affect one another. When they come together in proportions appropriate to the place, time, and people of a given community, they have the ability to foster desired change and sustainability.

Social infrastructure. Just as roads, buildings, and machines provide the physical infrastructure for a community to function, human relationships and social networks of varying types provide the social infrastructure for community to function and progress toward desired goals. As stated by Flora and Flora (2008: 131), “A community with a well-developed social infrastructure tends to engage in collective action for community betterment.” For this reason, this social infrastructure is entrepreneurial.

Social infrastructure is essentially the sum of a community’s different types of social capital relationships existing in optimal proportions. Social capital can be further divided into two distinctive types: bridging and bonding of social capital. When both are strongly expressed, a community is equipped to achieve goals by working cooperatively amongst themselves and by creating beneficial alliances with other communities or with other entities outside of the community.

The social networks, norms of reciprocity, and trust that make up social capital can exist among members of a single community or group. This is considered bonding social capital, and is typified by horizontal relationships between a homogenous groups of people within one group or community. Bonding relationships are fostered through day-to-day life, results in group solidarity, and encourage reciprocal relationships among community members.

“Not only is each member of the community expected to give, earning status and pleasure from doing so, but each is expected to receive as well. Each person in the community is deemed capable of sharing something valuable with all members of the community...”

(Flora and Flora 2008: 129). Freudenburg (1986) described a concept akin to bonding social capital in his discussion of “density of acquaintanceship.” Density is defined as “the average proportion of the people in a community known by the community’s inhabitants” (1966: 30). Freudenburg’s concept helps describe how bonding relationships result in community cooperation. With higher density comes reciprocity between members. Once people are acquainted they feel a higher degree of obligation to one another than they would if they

were strangers. In communities where many people are acquainted with one another, they are more willing to “look out” for one another, assist one another, and cooperate with one another. Bonding social capital represents reciprocal intra-community relationships which are necessary for effective collective agency.

The social networks, norms of reciprocity, and trust that make up social capital can also exist between different communities or groups. Bridging social capital occurs when horizontal relationships are established between different and mainly separate groups within a community or between one community and another. Bridging social capital also occurs vertically between a community and an outside organization. These relationships are often objective-specific, meaning, they serve a single function and may become inactive when they are no longer needed. This is in contrast to the day-to-day, and unspecific relationships characteristic of bonding of social capital. Through bridging, resources not present in one group or community can be accessed. Granovetter’s (1973) concept of “strong” and “weak ties” (akin to bonding and bridging respectively) buttresses the idea that social capital connects different communities with one another. Weak ties “are more likely to link members of *different* small groups than are strong ones, which tend to be concentrated within particular groups” (1993: 1376). Narayan (1999) uses the term “cross-cutting ties” to express the same bridging function. “Cross cutting ties which are dense and voluntary, though not necessarily strong... help connect people with access to different information, resources, and opportunities” (1999: 13). Bridging social capital represents objective-specific inter-community relationships which are necessary for accessing resources and creating opportunities that are not innate to that community, but that are needed to achieve a desired outcome.

Working in tandem, bridging and bonding social capital are favorable community attributes. Together, they position community members to effectively work together in accessing and utilizing resources needed to achieve desired outcomes. They are able to form productive alliances with outside entities in order to access resources, and are able to effectively cooperate amongst them selves in order to put resources to good use.

Legacy. Cultural capital exists within an individual or group. Legacy adds to the concept of cultural capital a dimension of generational succession. Legacy can be thought of as the intergenerational succession of cultural capital. It is the cultural capital which is transferred from one generation to the next. Flora and Flora (2008) define legacy as the set of values and ways of living which are passed from one generation to the next. Presenting the concept of legacy in this way, as something instilled in children by parents, is appropriate, since in order for legacy to be sustained, it must be passed from the preceding generation to the upcoming generation. According to Flora and Flora, parents “pass on an understanding of society and their role in it, speech, dress, and ways of being – cultural capital –that in turn affect the choices their children make. *Legacy* is what families, communities, groups, and nations pass on to the next generation” (Flora and Flora 2008: 55). The transmission of legacy is a process of socialization of the upcoming generation. Through this socialization, children are given the tools needed for survival within their society, for aspiring toward the life valued by their parents or caretakers, and for establishing themselves within society so they can be poised to pass on their legacy.

For agricultural communities, legacy is always land-based, and often place-based. Agriculture is an intimate relationship between humans and the land, and agriculture does not exist without access to land. Farmers do sell land and buy land, they expand and contract the size of their farm, and farmers do relocate to a completely different place. At times in history such as the Dust Bowl, the relocating of farm families from Oklahoma to California was common, but against their will. In California’s early times, many early farmers were also investment-savvy businesspeople. Land acquisition, agricultural development of it, and the later selling of this land once its value had increased was frequently done as a means to acquire financial capital. Whether a farm family was willingly or unwillingly separated from their land, their connection to some piece of arable land is essential for their legacy.

Agriculture, and farm legacy, does not exist in the absence of land. Land matters.

Some farmers’ ties to their land may periodically be severed, but it is also true that many family legacies are tied to a specific piece of land - *their* land. The family’s relationship with just any piece of land will not suffice. Land is immobile; thus, place matters. For this reason the adaptability, inventiveness, cooperativeness, and ability to do well with what one’s place

provides is essential for sustaining agricultural livelihoods (The Aspen Institute 2005). When challenges arise, the option to relocate is strictly a worst-case scenario and hardly a conceivable option. Whether or not agricultural communities sustain into the future, whether or not their legacies are continued, depends on their ability to overcome the challenges of place- *their* place.

Contrasted to the land and place-based qualities of agriculture, the resources relied upon by some other economies, especially knowledge or information economies, are highly mobile. The “creative economy,” as termed by Florida (2002), taps into a resource of men and women who are willing to relocate over and over again, in pursuit of a fulfilling career and lifestyle. This mobile creative class takes with them their minds, education, talent, and of course, their creativity as they make the next career move. Land, on the other hand, is fixed in place, as is farm family legacy.

An intimate knowledge of one’s land and community are part of legacy. It has been proposed that an intimate knowledge of one’s place, which becomes stronger with each generation’s tenure, is the foundation of agricultural community sustainability (Jackson 1994). In Jackson’s words: “We are unlikely to achieve anything close to sustainability in any area unless we work for the broader goal of becoming native to our places in a coherent community that is in turn embedded in the ecological realities of its surroundings landscape” (1994: 3).

The natural environment is diverse. While we may be able to generalize certain qualities about men or women, about North Americans or South Americans, or blacks or whites, to truly understand the personality of any one person requires a relationship with that person. To understand the “personality” of any one piece of land also requires a relationship with that land. To farm a piece of land well - to be able to make long-term management decisions which take into account the assets and limitations of the land - requires a familiarity and an ongoing relationship with that piece of land (Leopold 1996). Kirschenmann describes his ongoing relationship with his land and his concurrent “evolution of an ecological conscience” in the following passage.

I believed that there had to be a core set of practices that farmers could adopt on their farms to make them sustainable. If you practiced crop rotation, included green

manure legumes in the rotation, composted your manure and spread it on your fields, your farm would be sustainable. But, on my own farm, it didn't take me long to realize that such a prescriptive approach to sustainability was deeply flawed. The first lesson I learned was that no two farms are alike; consequently, any universal prescription for sustainability was inept... Practices that may move my central North Dakota farm toward sustainability could be totally dysfunctional in central California (Kirschenmann n.d.).

In addition to knowledge of the environmental and agricultural aspects on one's place, a grasp of business and cultural knowledge specific to one's place are also critical. In modern United States agriculture, farming is a business as much as any other, and familiarization of the economic and cultural nuances of a specific place are an important skill. Flora and Flora articulate this idea well.

For those who farm or operate a small business in rural communities, the three legacy goals combine in a single place... Personal fulfillment comes from the family business and involvement in the local community, which makes the connection between legacy and place enormously strong... Although some of the knowledge needed to run a successful business may transfer from one community to another, understanding how to run a business in any particular town may be specific to that town's culture. Consequently, knowledge and connections important to economic survival in a given community transfer from parent to child." (2008: 68).

The knowledge of how to navigate through the economic, cultural, and natural terrain of a given community or farm is an expression of cultural capital and can be passed down from one generation to the next. It is an expression of legacy. Legacy, in this context, is the transmission of land and community knowledge needed for sustaining farmer livelihoods.

I have defined legacy, but what does it mean to sustain legacy? Legacy, as I have defined it, is cultural capital which is passed from one generation to the next, and suggests continuation through time. To sustain legacy is to ensure that the cultural capital comprising legacy can continue its generational flow. An un-sustained legacy would be one which ceases to transfer from generation to generation and becomes obsolete.

Sustaining the legacy of a farmer requires sustaining the occupation of farming for the present generation and for future generations. Accomplishing this requires continuing the farmer's relationship with the land and producing a livelihood from this working relationship. To sustain the farmer's legacy, the working and productive relationship between farmer and land must remain intact. An un-sustained farm legacy would be one were the

farmer was removed from the land, or the farmer's relationship with the land stopped being productive, and thus, the farmer was unable to continue the occupation.

Sustaining farm legacy does not mean nothing changes. It means that a farm family has successfully passed the cultural capital and the accompanying occupation of farming to the next generation. In most cases sustaining farm legacy requires change. A unique cultural capital is passed from one generation to the next and may only slightly change as it is transmitted, but the natural, economic, and social world which the farmer must navigate through is dynamic, and the family must acclimate to changes in order to remain viable.

In modern agriculture sustaining farm legacy necessitates economic viability, since land is either rented or ownership is taxed. Additionally, there are operating costs beyond land payments such as farm equipment, fertilizer, and employees. The natural capital must also continue to support productive agriculture. For instance, water must be available for irrigation and soil must contain sufficient fertility. Social factors must also be in align to maintain this farmer-land relationship. Policy, regulation, and the market are examples of social factors which impact economic viability. The farmer's ability to acclimate to and affect the economic, natural, and social factors, especially stewardship of all agricultural resources, is a further contributor to whether or not the productive relationship with the land continues. Sustaining farm legacy is dependant on maintaining a productive relationship with land now, and into the future.

In California, "farmers" are referred to as "growers," and growers who grow winegrapes are "winegrowers." For this reason, the term "winegrower legacy" will used throughout this thesis.

Sustainable agriculture, sustainable viticulture, and Lodi, California

Sustainable agriculture. The tenets of sustainable agriculture are best understood in light of its antithesis: productionist agriculture. Embodied by Earl Butz's injunctions of "plant fence row to fence row" and "get big or get out," productionism is the economically and ecologically absurd notion that more is better. In the words of Thompson: "*Productionism* is the philosophy that emerges when production is taken to be the sole norm for ethically

evaluating agriculture” (1995: 48). He goes on to point out that no individual would agree with this idea, since even common sense can identify its shortcomings. But in spite of this, the productionist paradigm has come to be America’s agricultural model by way of cultural, economic, technological, and political drivers. Productionism is more than a farm-level goal; it has come to be the philosophical model of contemporary mainstream agriculture.

When production or maximum yields are the sole measure of agriculture, other components of the agricultural system, such as natural resources, market stability, and social equity go unmeasured, and as a result, imbalances may go unchecked. In 1980, the groundbreaking and controversial USDA *Report and Recommendations on Organic Farming* was published. This report detailed the environmental, social, and economic problems ensuing from conventional agriculture, and reflected the increasing concerns among some agriculturalists, scientists, and policy leaders over the sustainability of conventional agriculture (Francis and Youngberg 1990). Sustainable agriculture is, in large part, a response to the following concerns identified by the USDA’s seminal 1980 report.

- Increased cost and uncertain availability of energy and farm chemicals.
- Increased resistance of weeds and insects to herbicides and insecticides.
- Decline in soil productivity from erosion and accompanying loss of organic matter and plant nutrients.
- Pollution of surface waters with agricultural chemicals and sediment.
- Destruction of wildlife, bees, and beneficial insects by pesticides.
- Hazards to human and animal health from pesticides and feed additives.
- Detrimental effects of agricultural chemicals on food quality.
- Depletion of finite resources of concentrated plant nutrients.
- Decrease in numbers of farms, particularly family farms, and disappearance of localized and direct marketing systems.

In contrast, the sustainable agriculture model evaluates agriculture with a more holistic yardstick. In the words of agroecologist Miguel Altieri,

Sustainable agriculture generally refers to a mode of farming that attempts to provide long-term sustainable yields through the use of ecologically sound management technologies. This requires that agriculture be regarded as an ecosystem (hence, the term agroecology) and, as such, farming and research are not concerned with high yields of a particular commodity but rather with the optimization of the system as a whole. It also requires looking beyond production economics as considering the vital issue of ecological stability and sustainability (1995: 89).

Sustainable agriculture's holistic focus is in stark contrast to production agriculture's singular focus, and aims to maximize many capitals.

The roots of sustainable agriculture come from converging disciplines. Some inform the ecological facets of sustainable agriculture and take the perspective of agricultural systems as reflections of natural ecosystems and emphasizing the beneficial role of biodiversity (Altieri 1995; Soule and Piper 1992). Others recognize the need for sustaining traditional agrarian and place-based cultures, their values, and religious beliefs (Berry 1977; Jackson 1980). Predecessors to modern sustainable agriculture went beyond the concept of stasis and point to the importance of environmental regeneration or improvement, especially in regards to soil health (Rodale 1983; Rodale 1985). The common theme of all the contributors to the sustainable agriculture model is that agricultural systems are just that, systems, and ought to be managed as such. This is in contrast to conventional agriculture's linear approach of inputs and outputs.

Sustainable is a nebulous term which requires definition, and therefore sustainable agriculture has been defined in countless ways. The following is one well-rounded definition.

Sustainable agriculture is a system that utilizes an understanding of natural processes along with the latest scientific advances to create integrated, resource-conserving farming systems. These systems will reduce environmental degradation, are economically viable, maintain a stable rural community, and provide a productive agriculture in both the short and the long term" (Francis and Youngberg 1990: 6).

This inclusive definition was composed in 1989 by the North Central Region Committee on Sustainable Agriculture, and suits this thesis well because it underscores the systemic view of sustainable agriculture addresses ecological farm management, considers energy efficiency, acknowledges the need to include farmer livelihoods in the sustainable equation, and includes the importance of a long-term vision. All these issues are explicitly included in Lodi, California's sustainable viticulture programs.

This definition, as inclusive and comprehensive as it is, leaves out one issue demanding attention in any discussion of sustainable California agriculture: farm labor. The Golden State's position as an agricultural powerhouse is dependent on its use of farm labor (Walker

2004). Unfortunately, the history of farm labor in California, often migrant and immigrant, is wrought with inequitable and exploitive employer/employee and political relationships (McWilliams 1935; Schlosser 2003; Wells 1996). This has been the case since the state's beginnings of industrialized agriculture (Pfeffer 1983). These inequities as ubiquitous as they are in California, are ongoing, and perpetuate even within alternative and supposedly progressive farming models such as organic (Guthman 2004). With this in mind, sustainable agriculture in California must be attuned to the treatment of *all* of the resources it employs - including human labor.

Sustainable Agriculture Research and Education Program at University of California, Davis states that sustainable agriculture has three objectives: environmental health, economic profitability, and social equity (UC SAREP 1997). This definition, known as the three "E's" of agricultural sustainability has come to be a widely used definition in sustainable agriculture and was officially adopted by Lodi winegrape growers in 1992 (Ohmart and Matthiasson 2000). Following suit, the Wine Institute and the California Association of Winegrape Growers adopted a similar definition in 2002 which states sustainable winegrape growing uses "growing and winemaking practices that are sensitive to the environment (Environmentally Sound), responsible to the needs and interest of society-at-large (Socially Equitable), and are economically feasible to implement and maintain (Economically Feasible)" (Dlott, Ohmart, Garn, Birdseye, and Ross 2002).

Sustainable viticulture in California. The sustainable agriculture movement has gained credence among a broad array of agricultural actors including consumers, farmers, NGOs, politicians, and researchers; and California has been one of the movement's epicenters (Allen 2004). California sustainable viticulture has done more than just kept pace, and has "developed what might be the most comprehensive sustainability initiative of any US commodity" (Broome and Warner 2008: 134).

California is one of the most intensely farmed landscape in the world, and leads all other U.S. states in agricultural production. This fact paired with the environmental consequences of conventional agriculture, the state's rapidly growing population, consumer activism, environmental regulation, water access issues, and public concerns about agricultural

biotechnology, have created friction between agriculture and environmental and urban interests. The increasing scrutiny over agricultural environmental footprint has led to proactive measures to prepare California agricultural actors to navigate increasing environmental regulation and resulting social tensions (Swezey and Broome 2000). Tensions are especially severe in viticultural regions, since the scenic landscaped of vineyards in some regions (but not Lodi), attract urban to rural migration. Newly rural residents bring with them pastoral expectations of rural living, often have little tolerance for agricultural infringement into their lives, and possess the political, social, and financial capital to address agricultural issues they see as problems. In Lodi and in the rest of the state, agroecological partnerships and collaborative relationships have been the primary channel for grower efforts to deal with these conflicts (Warner 2007a).

Lodi, California. Lodi is known as one of California's prominent and historic winegrape growing regions with a commercial winegrape history beginning in the 1860s (Sullivan 1998). Located in the northern tip of the San Joaquin Valley, Lodi consists of about 90,000 acres of vineyard and produces about 20% of the state's winegrapes. In 2007 Lodi produced 40% of the state's zinfandel, 26% of the state's merlot, 25% of the cabernet sauvignon, 22% of the chardonnay, and 21% of the sauvignon blanc (calculated from USDA NASS 2008b). Lodi is well regarded for several varieties of winegrapes, but zinfandel has become the most respected and characteristic varietal wine of the area.

High quantity and low quality have historically been the linchpins of Lodi's winegrape economy, but change is underfoot. Growers generally sold their fruit into the bulk wine market to a small number of large wineries who processed the winegrapes into generic wines. This was lucrative for a time, but as consumer preference for such wines faded, Lodi's mid-twentieth century claim of being "America's Sherryland" was no longer a marketable identity (Kennedy 1994). In the late 1960's and 1970's many of Lodi's wineries became economically unviable, as the region's jug wine market collapsed, and the facilities were taken over by out-of-town wineries or closed all together (Asher 2002). Since the 1980's, wineries and growers have been progressively shifting toward the use of winegrape production methods intended to produce higher quality winegrapes and wine (Broome and Warner 2008; Klonsky *et al.* 1998). Robert Mondavi's Woodbridge winery, established in

1978, was a catalyst in this shift (Asher 2002). Beginning in the 1990's Lodi growers began planting winegrape varieties appropriate for finer varietal wines, which were sought after by the growing number of consumers with refined wine preferences. Lodi's targeted wine market was the moderately priced "fighting" varieties.

Lodi's reputation as a bulk wine region remains partially remains today, but to the extent the climate, typography, and soils will allow, quality is increasingly becoming more of an economic factor. Within the past fifteen years Lodi growers and winemakers have been working aggressively toward recasting a new regional wine identity (Ohmart 2008: personal communication). The new vision for Lodi's wine industry is one of locally produced high quality wines characteristic to Lodi's people and environment, and within the past five years sustainably has been added to the branding scheme (Chandler 2009: personal communication). A decentralization in wineries has also occurred. In the past two decades Lodi has experienced close to a ten fold increase in local wineries. In 1990 eight Lodi wineries were in operation. In 2000 the number rose to 25, and today in 2009 75 wineries exist. It is projected that Lodi will be home to 100 local wineries by 2015 (Chandler 2009: personal communication).

Sustainable viticulture in Lodi. Lodi winegrape growers have established some of the most robust sustainability programs in the state, and arguably in the country (Warner 2007a). In the words of Warner, the Lodi network of winegrape agroecological partnerships has been "widely credited within the California winegrape industry as creating the most comprehensive working model of a regional, grower-supported initiative to promote sustainable practices" (Warner 2007a: 20).

Sustainable viticulture in Lodi can only be understood against the backdrop of the Lodi Winegrape Commission. In 1991 the commission was created by referendum, with the aim of promoting Lodi wine. It was the first commission of its type in California, and it was grower-initiated. California state law permitted state-wide crop-specific commissions, but Lodi growers took legislative action to amend the law so as to permit regional commissions. To operate, the commission draws its \$1,000,000 annual budget, which is generated by a mandatory grower self-tax issued to each of the region's 800 grower-members. Grant

funding augments this budget. The commission's missions are to raise industry and consumer awareness of the Lodi wine region, enhance regional recognition by facilitating development of local wineries and wine tourism, provide growers with strategies for improving profit, raise the quality of Lodi winegrapes and wine through two-way communication between growers and vintners, create functional relationships and opportunities between Lodi growers and premium wine makers, conduce practical viticultural research, and encourage implementation of ecologically sound and economically viable viticulture (Lodi Winegrape Commission 2008). Every five years, grower-members have the opportunity to vote for or against the continuation of the commission. Growers have not yet voted the commission out of existence.

In 1992 Lodi Winegrape Commission founded a sustainable winegrowing program (Ohmart and Matthiasson 2000). The program was the first of its kind in the state. It was meant to be “useful to the entire range of growers in the district; provide educational information that encouraged growers to implement sustainable winegrowing practices; provide a measurement system so that growers can gauge how they are doing in terms of implementing sustainable winegrowing; and provide recognition for their efforts” (Lodi Winegrape Commission 2008). This was accomplished through grower outreach, field experimentation and demonstrations, and the use of *Lodi Winegrowers Workbook: A Self Assessment of Integrated Farming Practices*.

The workbook (Ohmart and Matthiasson 2000) was composed by Lodi growers, industry specialists, and scientists, and was intended to be Lodi-specific. The workbook was designed to use what is referred as a “whole farm” approach. It considers everything that is done on the farm, not only viticultural practices. Two editions of the workbook have been published so far, and they have served as the model for all other California and sustainability workbooks.

In 2005, the commission formed California's first third party sustainable viticulture certification program for winegrapes: the Lodi Rules for Sustainable Winegrowing (Lodi-Woodbridge Winegrape Commission 2006). Through the use of the workbook, growers had been implementing sustainable viticulture practices for thirteen years. The motivations for

creating the Lodi Rules was primarily economic. The objective of the program was to add market value to their winegrapes through third-part certification. The program was also intended to increase Lodi's image as a sustainable viticulture region.

Methods

The life history method. According to Norman Denzin, the life history method captures the experiences and perspectives of individuals or groups over time. It captures the “inner life” of the subject and elicits the subject’s definitions of their world and situation.

The sensitive observer employing the life history method will be concerned with relating the perspectives elicited to definitions and meanings that are lodged in social relationships and social groups... Concern will ... be directed to recording the unfolding history of one person’s, one group’s or one organization’s experiences. This feature becomes a hallmark of the life history method - the capturing of events over time. The sociologist employing the method becomes a historian of social life, be it the life of one person or of many persons similarly situated (Denzin 1970: 221).

The life history method is similar to in-depth-interviews, but it is set apart because it aims to elicit information beyond the scope of interview questions, and collects a more comprehensive narrative of an individual’s life-long experience with a topic. In this case, the topic is agriculture. I sought to elicit a rendering of Lodi Rules growers’ life stories in agriculture spanning their early life until their present day participation in the Lodi Rules. I probed when appropriate. A list of probing questions has been included as Appendix 1. In this manner, I gathered narrations of events, decisions and outcomes, surprises, tragedies, motivations, and opinions. Individual life stories fed into the larger narrative of Lodi.

Sampling. Purposive sampling aided by a key informant was used to select growers. Clifford Ohmart served as the key informant. His role as the director of the Lodi Winegrape Commission’s sustainable viticulture program made him an ideally qualified key informant. Ohmart was familiar with all Lodi Rules growers, as he had been closely working with them over the course of many years. The goal was to create a sample which represented the major attributes of Lodi Rules growers, and Ohmart’s insight was essential in determining what these attributes were. Two criteria were developed to account for the attributes and have been labeled as “categories” and “characteristics.”

Grower categories. Three grower categories were created to capture the spectrum of differences among Lodi Rules growers: originals, on-the-fencers, and joiners. Originals are those growers who were involved in the formation of the Lodi Rules, became certified in the program’s first year, and are still certified at the time of the interview. On-the-fencers are

those Lodi Rules growers who have expressed that they have been considering discontinuing certification. Joiners are those growers who have joined the program at any time after the first year of certification.

Grower characteristics. As the sampling process progressed, it became apparent to Ohmart and myself that the three grower categories was insufficient, and further grower characteristics had to be included if the sample was to represent the spectrum of differences among growers participating in the Lodi Rules. The first of these was farm size. The motives and experiences of growers owning larger vineyards is likely different than growers owning smaller vineyards. Ohmart recommended defining “small” to be vineyards less than 200 acres, “medium” from 200 to 600 acres, and “large” being greater than 600 acres. The second characteristic was whether or not the growers had become certified before or after one Lodi winery had begun offering a price bonus¹ for Lodi Rules certified fruit. According to Ohmart, economic motivation was more strongly expressed among growers becoming certified after the bonus was offered. Growers certifying their vineyards prior to the bonus were also economically motivated; however, their economic motivation was likely longer-term, and their other motivations more diverse. The third characteristic was operating structure. Most winegrowers farm land they own themselves, but others own vineyard management companies and farm for hire. These three characteristics, along with grower categories, were considered when selecting interviewees.

Initial contact. Ohmart provided an initial list of fifteen names and contact information of potential interviewees representing the grower categories and characteristics. Prior to my contacting potential interviewees, Ohmart delivered an e-mail to all Lodi Rules growers introducing the study, expressing his full support, and asking for their willingness in the case their participation was requested. Initial contact with potential interviewees was made via telephone by myself. Fourteen growers agreed to participate. After verbal agreement was obtained and an interview time and date scheduled, a formal letter describing the study and a letter of consent were mailed to each of the fourteen confirmed interviewees.

¹ Beginning in 2005 one Lodi winery was offering a \$50 per ton price bonus for Lodi Rules certified winegrapes. This winery was the only winery, not only in Lodi but in the state, offering a price bonus for Lodi Rules certified fruit.

Analysis. Each of the fourteen interviews (digitally recorded) were roughly one and a half hours in length. All fourteen interview recordings were listened to and analyzed in their entirety, but were not completely transcribed. Complete transcription was not undertaken for reasons of time and financial constraint. Instead, I listened to the audio files, took notes on emerging themes, made note of their location on the recording for use in revisiting sections, and transcribed those sections useful and relevant in presenting the dominant emergent themes. This method was useful as it allowed for effective use of my limited resources, and I was able to focus attention on those portions of the data most relevant to the dominant emergent themes of this thesis. Frequencies related to emergent themes were also tallied.

Follow-up survey. As the analysis proceeded it became apparent that quantitative data was needed to better present the themes which emerged from the qualitative analysis. With the use of the internet-based Survey Monkey, all fourteen interviewed growers were asked to complete a follow-up survey, which is included in Appendix 2. The purpose of the survey was to gather data needed to ensure the validity of emergent themes, to fill in information gaps, and to elaborate on data gathered from the interviews. For example, the number of generations a family had been farming in general, and farming in Lodi specifically, was important information to include in the results discussion of winegrower legacy. In some cases the exact number of generations a grower's family had been in farming and had farmed in Lodi were not collected during the interview process – conversation was vague, as in “many” generations. The survey was designed to elicit such exact data and was needed to calculate percentages, create diagrams and charts, and fill in tables. Twelve growers completed the survey. For the two non-responsive growers, I was able to glean the needed information from their interview recordings.

Validity issues addressed. I am no stranger to Lodi, to the Lodi winegrower community, or to some of the growers I interviewed. My family grows winegrapes in Lodi, and has been doing so for generations. Because of this, all the growers I interviewed know my family. One interviewee was a high school classmate of mine. These circumstances present potential validity and bias issues.

Because I was not an anonymous researcher, it is plausible that interviewees may have been motivated to withhold controversial information or may have filtered the information they shared so as to portray a positive image of themselves, their family, or their community. Interviewed growers were, in fact, forthright with negative information. These serves as a deviant cases which deflate concerns of invalidity. Examples include regrets and mistakes pertaining to their farm history, financial hardship of their farm business, ongoing disputes and personality conflicts within their families, criticism of other Lodi winegrowers, criticism of the Lodi Rules program, and some discontent with the amenities of the town of Lodi. These cases attest to the validity of the data, and show that my acquaintances with interviewees did not lead to filtered responses.

The benefit of being my acquaintances with interviewees was that I was greeted by growers as one of their own and may have been trusted more than if I had been a stranger. It is likely this allowed the interviewees to feel more comfortable and willing to disclose their life histories to me, and the quality of data collected may have benefited.

The LWC financially sponsored a portion of the costs associated with this thesis. They covered the complete cost of a rental car and fuel (\$700), which I used for transportation during the week spent in Lodi conducting interviews. The LWC sponsored this thesis for the reason that it might provide useful insight into grower motivations for participating in the Lodi Rules, and that I might suggest future avenues for developing the program based of the findings. The LWC's financial sponsorship was not disclosed to interviewed growers. However, during the interview process many growers did inquire about the nature of my collaboration with the LWC. In these instances, I disclosed the sponsorship and the LWC's motivation.

Confidentiality. This thesis has maintained interviewee confidentiality. Pseudonyms were assigned to each interviewee, and were used within this text. Growers were given the opportunity to chose their own pseudonyms through the follow-up survey. Those that did not provide one were issued one by myself. The name of the key informant used here, Cliff Ohmart, is his real name and was used with permission.

Results and Discussion

Introduction of findings

Five emergent themes will be discussed in this chapter. I start with a grower definition of sustainable viticulture. What does it mean to be sustainable to Lodi Rules growers? Second, I discuss the major and theoretically central finding of this thesis: winegrower legacy and its relationship to sustainable agriculture. Third, I attempt to shed light on the question of “Why Lodi?” Why has Lodi’s winegrowing community establishing California’s first and most successful sustainable viticulture program? Fourth, I present growers’ motivations for creating the Lodi Rules, beyond economic gain. Finally, I venture into the a discussion on human capital as it relates to sustainable viticulture.

The Lodi Rules described

Before continuing, I will describe the Lodi Rules. As I have briefly mentioned earlier, the Lodi Rules is a third-party` certification program for sustainable viticulture. It operates on the foundational principals of sustainable agriculture discussed in this literature review and employs the three E’s of sustainability as a theoretical framework: **E**nvironmentally sound, **E**conomically viable, and socially **E**quitable. Lodi growers themselves, in collaboration with scientists, and winegrowing industry specialists, and using the *Lodi Winegrowers Workbook* as a guide, composed a list of standards for sustainable winegrowing. Many of the growers involved in composing the workbook were also involved in forming the Lodi Rules standards. (This set of standards is not included as an appendix in this thesis, because they are considered proprietary.) Six general areas of winegrowing are addressed.

- | | |
|--|---------------------------------|
| 1. Ecosystem management | 4. Water management |
| 2. [Human/employee] education, training
and resource building | 5. [New] vineyard establishment |
| 3. Soil management | 6. Pest management |

Participating growers are required to meet certain benchmarks of sustainability as outlined by the standards. Growers are required to implement these practices in their winegrowing operations and keep rigorous records of their actions. Points are earned depending on how many practices growers successfully implemented, and a grower must earn a certain number

of points to earn certification. Growers are able to track their accumulation of points with the program's self-assessment system. The records and the actual vineyards are annually inspected by a third party certifier who either confirms or denies the grower's successful completion of the requirements. Upon successful completion, the grower may claim certification. Wineries making wine from certified fruit are permitted, but not required, to use the Lodi Rules logo on wine labels. It is important to note that while the Lodi Rules was formed to add value to certified winegrapes, currently only one winery offers a price bonus - \$50 per ton for certified fruit.

The sample

The fourteen interviewed growers represented grower categories and characteristics, and are depicted in Table 1. The pseudonyms have been for the reader as a reference since this thesis judiciously used grower quotations. This will allow the reader to refer to this table to relate the grower to his or her category and characteristics.

Table 1.

Grower categories and characteristics								
Grower category	Pseudonym	Grower characteristics						
		Small (<200 acres)	Medium (200-600 acres)	Large (>600 acres)	Pre-bonus	Post-bonus	Vineyard Management	Winery
Original	Joe Bob	X			X			X
Original	PJ Nickels		X		X			
Original	Albert Frost			X	X			
Original	Ben Friedland				X		X	
Joiner	Carly Smith	X			X			X
Joiner	Blue Oak	X				X		
Joiner	Hahns	X				X		
Joiner	Roger Seller		X		X			X
Joiner	Maggie		X		X			X
Joiner	Joel Dasher		X		X			
Joiner	Kaypee		X			X		X
Joiner	Jack Hunter			X	X			X
Joiner	Neal Pert			X		X		X
On-the-fencer	Armin			X		X		

Defining sustainable viticulture from the winegrower's perspective

The formal definition: The three "E's. As discussed in the literature review, the Lodi Rules defines sustainable viticulture as using "growing and winemaking practices that are sensitive to the environment (**E**nvironmentally Sound), responsible to the needs and interests of society-at-large (**S**ocially **E**quitable), and are economically feasible to implement and maintain (**E**conomically Feasible)" (Lodi-Woodbridge Winegrape Commission 2006: 2). The formal definition does not weigh one "E" over another. It suggests that all three are equal components of a sustainable viticulture system. However, grower definitions of sustainable viticulture are informed by the three E's, but are given an order of precedence or order, with economics taking center stage.

The grower definition. Twelve (86%) of the interviewed growers posit that, to them, sustainable agriculture is agriculture which provides an opportunity for their future generations to continue farming. Accomplishing this requires economic viability of their farm. According to their definitions, economic viability is achieved by stewardship of resources. Of these twelve growers, all included stewardship of natural resources in the discussion but only two growers explicitly included stewardship of human resources (employees). Kaypee's statement is exemplary.

To me, sustainable is sustainable. It is making a system work for you and not taking out more than you put in. Twenty years from now my kids won't be cleaning up a mess. It's not depleting your resources... You have to be thinking long term.

Joel's statement emphasizes to the economic and environmental elements. "Sustainable means being able to stay in business. Then there is the environmental part. I want to be able to sustain the land and pass it on to future generations."

Economic viability is an emphasized component of grower definitions and is the central feature of their discussion on defining sustainable agriculture. Six (43%) growers begin their description of what sustainable agriculture means to them with economic viability, and 13 (93%) relate their ability for resource stewardship to be dependant on economic viability.

Lodi Rules growers appear to be far from destitute or on the edge of losing their vineyards to bankruptcy, but they express dissatisfaction with the prices they receive for their winegrapes.

In spite of what the winegrape market fails to provide them, they do make a living. Some claim the farm income only covers the costs of operation, and that their business does not reliably make a profit. They perceive their economic viability to be threatened by low prices, and compounding this threat is a historic lack of better alternatives to the commodity market.. By potentially increasing the value of their winegrapes through certification, they may secure their economic viability.

In spite of the economic emphasis, the environmental and social elements are not excluded from the growers' definitions. They do not see natural and human resources as something to be extracted or mined and not replenished. They are included in grower definitions, to varying degrees, as essential resources that must be properly stewarded. Lodi Rules growers argue that well stewarded natural and human resources will positively affect their economic viability.

Natural and human resources are also seen by growers as positively affected by farm economic viability. They believe that if they are not able to sustain their economic viability, they will not be able to act as stewards of the land and generous employers

This utilitarian perspective is innate to agriculture, and is also grounded in the economic realities of modern California agriculture. The following quotation from Albert Frost, one of the growers interviewed, does a good job of describing this perspective.

I'm not a subsistence farmer. Farmers no longer grow all their own food, have chickens, and all that sort of stuff. That is the old world. In this world farmers are business men. I have kids, and I'm just as concerned with the environment as those who are not involved in agriculture. In sustainable agriculture the environment is very important, but what our company has come to understand is the human factor. If something is not good for our employees it is not good for us in the long run. I want my grandkids, who are four and seven, to be involved in California agriculture. If we are to achieve this, we have to be doing business in a manner that allows us to continue to be around... We need to be attuned to the environment and attuned to our employees, but at the end of the day the bottom line has to be black... Sustainable farming is not just one thing. It is a system.

Lodi Rules growers believe natural resources ought to be stewarded. The same perspective holds for human resources, although this issue was included in definitions to a much lesser extent. When properly cared for, these resources lead to farm economic viability. In turn,

economic viability allows growers to close the loop, and contribute to the well being of natural and human resources. In other words, Lodi Rules growers see stewardship to be an influence on, and to be influenced by economic viability.

Variation and consistency in grower definitions. The major variation in grower definitions is the level of holism - the extent to which the grower perceives sustainable agriculture to be a system. At the same time, economic viability is a dominant component in grower definitions of sustainable agriculture.

Neal Pert is in his first year as a certified Lodi Rules grower and did not appear to have spent much time contemplating the concept of sustainable. During our interview I asked Neal for his definition of sustainable viticulture. After a long pause, Neal confessed, “I don’t have the foggiest idea. Being able to survive, I guess. Hopefully be profitable.” Neal’s honest and on-the-spot definition of sustainability is a telling one. Economic viability takes precedence in his mind. Neal is not shy about making this clear. “To be honest, I do things for economic reasons. Period! If I can’t make money from it, there is no point in my doing it.” For Neal, the Lodi Rules provided an opportunity to increase his income, and he thinks of sustainability in a linear way: certification leads to increased profit.

The concept of sustainable viticulture is not new to Roger Seller. Roger is well read and educated about the concept, and he fluently speaks about sustainability in lay and scientific terms, as well as how it relates to his vineyard. He commented that his definition of, and interest in sustainability precedes his participation in the Lodi Rules. Additionally, he applies the concept of sustainability to aspects of his life beyond viticulture. Economic viability is also central to, but not the exclusive component of, Roger’s definition.

I look at it as an onion. The core of the onion is economic sustainability. If you are not economically viable you are not sustainable. Then you have the immediate people that work for you and the immediate natural resources that you sustain as a steward of the land. Then one layer further out would be associations with your community... Ultimately, something has to be done on a national level, for sustainability. Peels of an onion, it keeps going out and out.

For Roger, the Lodi Rules provided a chance to document his preexisting values, knowledge, and practices; and he thinks of sustainable viticulture in a systematic way.

The focus of attention by Lodi Rules growers on the economic component of sustainability is understandable considering the historic and current commodity wine market. Growers build their definitions of sustainable viticulture around economic viability and tether it to providing opportunities for their future generations. The natural and human elements are seen as resources which are essential contributors to economic viability, which can and ought to be stewarded. However, human resources were minimally addressed by growers.

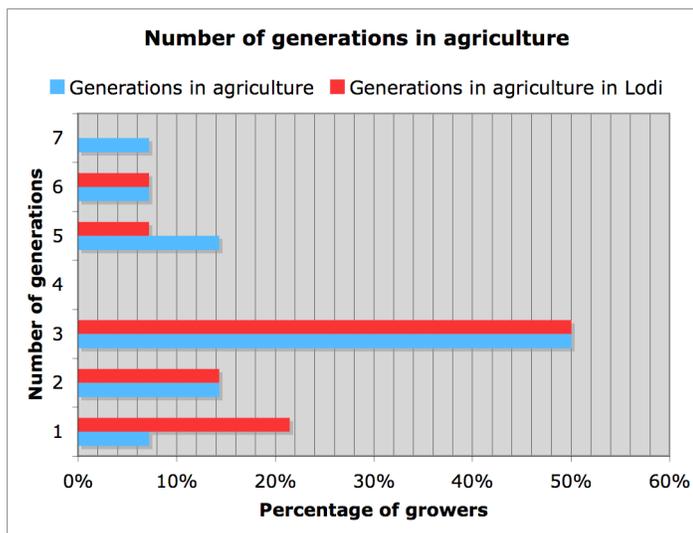
Legacy of a Lodi winegrower

What exactly do Lodi Rules growers seek to sustain? Kaypee is an earnest young grower. When I ask him what he envisions for the future of his land his answer is straight forward. “I want to see vineyards on my land, and I want to see my kids on my land.” Kaypee’s hopes for sustaining his winegrower legacy are not unlike those of his Lodi Rules peers. They seek to sustain their productive relationship to their land, the means to their livelihood, for generations to come. Sustaining winegrower legacy is the core motivation for participating in the Lodi Rules program.

Winegrower legacy. Thirteen (93%) of the Lodi Rules growers interviewed come from farming families. They grew up in and around agriculture; were raised in agricultural communities; had parents and immediate family members who operated farms, ranches, or diaries; and themselves participated in the operations of the farm enterprise. Eleven of the 14 interviewed growers (79%) have been farming in Lodi for more than one generation. Differences in perspective exist between first and continuing generation Lodi growers, but no matter their tenure, all but one exception hope to sustain their family’s relationship with their land and with Lodi into the future. (This one exception has no children or younger relatives.) The dominance of farm backgrounds among Lodi Rules growers suggests that winegrower legacy is a strong influences on Lodi Rules growers.

Table 2 depicts the spread of number of generations in agriculture, and number of generations in agriculture in Lodi.

Table 2.



Lodi Rules growers, having had agricultural upbringings, were imbued with the values, ways of thinking, perceptions, ways of acting, beliefs, and customs specific to farming. This cultural capital has persisted throughout their lives. As the saying goes, “You can take the boy out of the farm, but you can’t take the farm out of the boy.”

The concept of legacy is a highly useful idea that allows us to understand Lodi Rules growers, their motivations, and their actions. Winegrower legacy will be discussed here on two levels: individual and family.

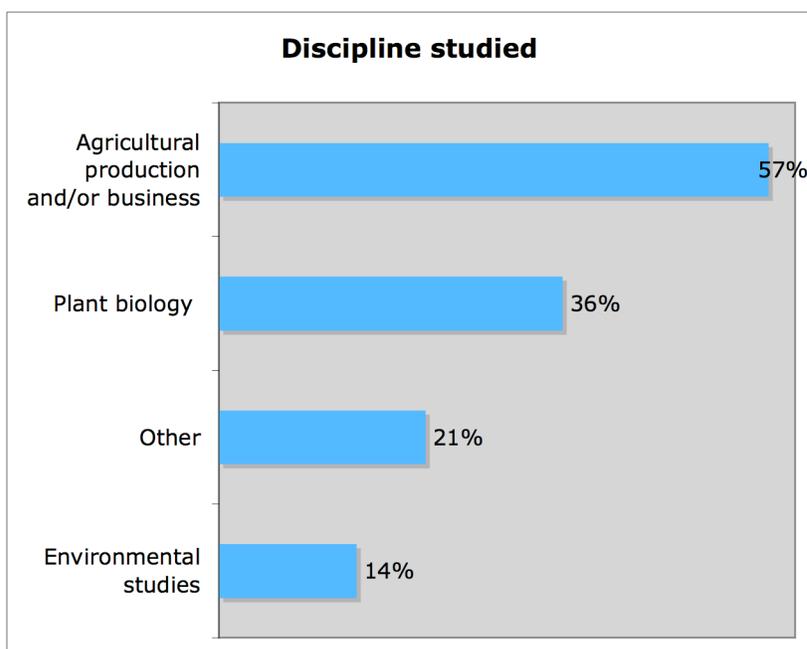
Winegrower legacy and the individual. Legacy is something which represents more than the individual person. It is instilled into the individual and is transmitted and expressed through the individual. For this reason, I begin this discussion on winegrower legacy on an individual level. How does winegrower legacy affect the perspectives, decisions, and actions of the individual Lodi Rules winegrower?

Farming, “It just made sense.” Each grower had to make their own decision to farm or not to farm. What to study while in college and what to do after graduation was a pivotal decision. College was a “make it or break it” time in terms of sustaining winegrower legacy.

According to Ben Friedland, “My freshman year at Delta Community College I took some of the electronics classes, and I knew right away. I went right back to agriculture. I was just more interested in farming. It just made sense.”

All growers interviewed earned bachelor degrees. Table 3 depicts the distribution of disciplines studied by growers while in college. Eight growers (57%) studied agriculture, which obviously aligns with their view of winegrower legacy. Five growers (36%) studied various areas of plant biology including ecology and pathology. This area of study, while not necessarily agricultural, is similar and related. With the exception of the Other category, all areas of study indicated in Table 3 are closely related to agriculture, and thus, we can state that 13 (93%) of growers studied areas either explicitly agricultural or closely related to agriculture. (The categories in Table 3 are not mutually exclusive and thus do not add to 100%. Some growers reported more than one area of study.) Winegrower legacy's influence on growers' choices to study agriculture is clear, but agricultural upbringings may also have had influence on growers' choices to study plant biology and environmental studies. What growers studied while in college not only had human capital applications once they began to farm, but their choices can also be thought of as continuation of a winegrower legacy.

Table 3.



The process of growers deciding that farming was the career they were best suited for unfolded in one of two ways. One was a process of intentional separation from agriculture. In this case growers initially desired non-farm careers. As young adults they saw farming as

hard work which earned little pay, and their aspirations were to be dentists and lawyers. One, Jack, was even ashamed to be a son of farmer. “In grammar school [farming] was the number one declining job, and it used to embarrassed me to be a farmer.” Others experienced pejorative receptions from their college peers. “They would say things like, ‘You are from where? Lodi? What a cow town.’” Eventually, they found that their understanding of the world was more in sync with a career in agriculture. They concluded that agriculture “just made sense” to them, and that it was the career path they were most suited for. As for Jack, the grammar school child who was ashamed to be from farmer stock, “... now I’m proud to be a farmer.”

Albert’s case fits the mold of the intentional departure followed by a return to agriculture.

I originally wanted to be a dentist. That waned, and I took some business classes that piqued my interest. One thing led to another, and I met a professor at Fresno State who was head of the agriculture economics department. I talked and talked and talked to him and the things he said just made a lot of sense. I finally decided I’d get my degree in agricultural business and economics.

One generation later, Jack Hunter’s story echoes Albert’s.

When I was in college I was thinking about going into law, but I started taking viticulture classes, and moving in that direction. It started to make a lot of sense to me. I liked the people I was working with. Even knowing farming is not the easiest life in the world. Farming is a lot of hours for not a lot of pay. It just started to click with me.

The second path taken by Lodi Rules growers was a more direct one. These growers saw agriculture as a constant future goal. They decided on an agricultural as a career from an early age, and hardly, if ever, were distracted from this trajectory. Hahns’s narrative is illustrative. “Agriculture was what I was familiar with. I did not have the desire to study anything else. I did not have a science or business background... You pretty much go along with where you come from. I just stayed in agriculture.”

Joel Dasher’s story is similar.

Making the decision to study viticulture at Fresno State was not a difficult decision for me. I had known for a long time I wanted to farm. There were some periods of time I thought maybe I should go off before coming back to the ranch. While in college, there were some opportunities in

Brazil for advising and vineyard development. I decided against it. I wanted to stay home, I wanted to farm, and I wanted to start a family.

These quotations demonstrate the pull cultural capital has on sustaining winegrower legacy. Non-agricultural career paths offered enticing opportunities and benefits agriculture could not, but agriculture “just made sense” to them, was comfortable, familiar, and fulfilled their needs. For others, agriculture was where they came from, was what they knew and understood, and they were content to “just stay in agriculture”.

“*Getting back to the land.*” Five growers (38%) spent periods of time in occupations removed, to varying degrees, from farming. During that time winegrowing was not their primary occupation. Nevertheless, their winegrower legacy was still a powerful driver in their move to grow winegrapes.

Joe Bob’s case is exemplary. His profession as a airline pilot was far removed from agriculture, but when the time came for him to retire, his agricultural heritage drove him to “get back to the land,” and return to his agricultural beginnings.

I wanted to have a retirement occupation that would be fun, might make a little money, something that was interesting, and I wanted to get back on the land. Before college, I was keen on going to agricultural school. That did not work out for one reason or another. Having grown up on a ranch, it was something I wanted to get back to. On our ranch we had cattle, grain crops, corn, pigs. I fed the pigs and helped milk the cows... When I had the opportunity to buy the land here, it was with this thought in the back of my mind that I should do something agricultural with the land.

Joe’s past career as a pilot was completely removed from agriculture, but other Lodi Rules growers had careers prior to winegrowing in agricultural business, agricultural research, or landscape maintenance. Joe’s extreme case is used here to demonstrate the strong influence winegrower legacy has on growers values, perspectives, and aspirations. To these growers, agriculture is something worthy of “getting back to.”

Identity and lifestyle. Part of winegrower legacy is expected or preferred lifestyle and self identity. The expectations individuals have of what constitutes the life-style they desire are part of their cultural capital. For Lodi Rules growers, what one does can not be separated from who one is, and thus their identity is laced into their work. The growers grew up in

agriculture, and from an early age learned to appreciate the agricultural lifestyle it provided and identity that came with it.

What is the farming lifestyle and the associated identity? When P.J. Nickels was in college, studying to be a doctor, he came to realize that farming would provide him with the lifestyle he wanted - the lifestyle he had grown up in. “I was in the whole med school crunch of pressure to get good grades. I did that for two years. In my third year I took this career class. I sat down and thought of everything that was important to me. I wanted to be my own boss. I liked being out-doors. I liked living with my family out in the country. Then I realized, wow, my father farms, what an opportunity for me.” After college P.J. decided to return to Lodi, and farm alongside his father and brother. This choice has proven to be a good one for P.J., and farming has allowed him to realize the lifestyle he was raised to value. “As far as being where I am and doing what I’m doing, I’m as happy as I could be. I just love it.”

“*Being my own boss.*” Lodi Rules growers appreciate many things about farming, but one theme is particularly strong: autonomy and “being your own boss.” As one grower put it “The unique thing about farming is that you are your own boss. That is what I like best about farming. I am the decision maker... I love being the sole proprietor and the one in control of my destiny.”

Being one’s own boss is demanding, and requires a diverse skill set. As one grower put it, “I’m a grape farmer, but I obviously do a hell of a lot more.” Farming requires growers to be competent in many areas. Jack describes the diverse skill-set of a winegrower.

It is probably one of the most diverse careers I could ever choose. To be a farmer... you have to be a biologist, a chemist, a politician, a marketing agent, a sales guy, a lawyer, you have to be all these different things. I’ll go from sitting behind my desk doing IT stuff to going outside and actually farming. There are not many careers where you can jump back and forth between so many disciplines... What I like most about farming is the fact that it is not stagnant.

Not all of the tasks required of them are enjoyable, especially the paperwork, but the diversity in jobs and skills are aspects of the farming lifestyle growers appreciate. “I’m the type of person who does not enjoy routine, and I’m constantly trying to break away from it,” said Roger.

“It is important to see the earth unpaved.” Another aspect of the winegrower legacy expressed by Lodi Rules growers is an appreciation for the natural environment, and a passion for working with and in it. Valuing the natural environment was instilled in them by their families, and influences how they perceive their relationship with their vineyards and their land.

My dad and uncle were hunters, and we would also backpack all over the Western United States when I was in high school. I still do that now. Appreciating nature is a large portion of who we are. Because my father took me backpacking and into the out-of-doors, I have earned a deep appreciation for nature and our place in the ecosystem. I appreciate the natural land on our property very much.

Farming allows Lodi Rules growers to interact with and work in the natural environment. This is a source of enjoyment for them. For Kaypee, working outside is fundamental to a high quality of life, and a fulfilling career. “I’m just not a desk kind of guy. I like being outside. I enjoy walking the fields. If I was not doing this for a living, I could imagine working for Fish and Game or something. Something where I’m constantly outside, moving... I’m outside all day with my dog.”

The seasonal nature of agriculture is in tune with natural rhythms, and this ever-changing connection to the natural environment is also a source of fulfillment for some growers. As stated by Roger, “I’ve found that I’m passionate about the seasonality of farming.” Roger says he does not like routine in his life, and thus, appreciates seasonality of working with the natural environment.

Winegrowing is a rural occupation that is starkly different from urban life. Living and working in a rural setting is part of agriculture, has an affect on lifestyle, and is part of the cultural capital of Lodi Rules growers. “Being out here in the country is important to me. It is important to see the earth unpaved. I don’t like the city as much because all that useful ground is covered over. I enjoy being outside and being able to walk a half mile with my dog and not seeing anyone else.”

From an early age Lodi Rules growers have lived and worked with the natural environment, and they have come to value its presence in their lives. Joel’s words describe the simple pleasures he receives from farming. “I like going out and smelling the dirt... I am able to

walk the fields, and watch things grow.” Continuing their winegrower legacy allows them to continue this rewarding relationship with the natural environment.

“I’m a farmer.” The factors discussed in the preceding paragraphs - agricultural family histories, farming “just making sense,” “getting back to the land,” autonomy and “being your own boss,” an appreciating for rural landscapes and the natural environment, all converge to create a farmer’s identity and is central to the discussion of winegrower legacy on the individual level. I asked Lodi Rules growers about their identity, and all 14 responded with a version of “I’m a farmer.” In the words of P.J., “I’m proud to be out there in the truck. I have a dirty truck and I’m dirty all the time. My hands are less than beautiful. This is the identity I like. I’m proud to be a farmer. *I’m a farmer.*”

Winegrower legacy and Family. For Lodi Rules growers the idea of sustaining legacy can not be discussed without addressing the topic of family farm succession. All fourteen growers hope to sustain their own unique winegrower legacy and the thirteen growers who have children or younger relatives hope to provide for them the option of continuing their winegrower legacy as Lodi winegrowers.

Pride, commitment, and sacrifice. Jack is a fifth generation grower. After college, he decided to sacrifice his plan to work abroad in the wine industry because his help was needed at home on the family vineyard. While he harbors some regret over not venturing away from home before returning to settle, his commitment to his family and their winegrower legacy outweighed the other options. Jack’s parents intentionally did not pressure him to return home. They wanted him to find his own way in the world. He weighed his options and decided staying home was what he wanted to do.

When I was thinking about what I wanted to do for a lifetime, I realized that I wanted to work for... my family name and continue our tradition... There is an element of pride for the land we farm, our family, and business name. All that came into play and brought me back to the farm.

Jack has been managing the vineyards on his family’s farm since 2004. He has not yet lived abroad for an extended period of time and still thinks about it, but he is committed to helping his family and has embraced his position in the family business. He is committed to his winegrower legacy. “When you come back to farm with the family, there is a certain level of

commitment you have to make. I'm either going to make this work, or it will drive me into the ground. Farmers are so tied to their family commitment and to their land that it is a lifestyle."

Jack is committed to his winegrower legacy no matter the struggle, but not all growers express this unconditional commitment and optimism that sustaining their winegrower legacy is possible or favorable given economic factors. One grower has conditions.

Conditions to sustaining winegrower legacy. Armin was the only first generation grower interviewed. While an anomaly, his case is interesting when compared to the other growers, all of which are at least second generation growers. He is passionate about farming and his involvement with farming is nearly lifelong and strong, but he expresses conditional commitment to agriculture.

I will stick with this, but I won't go backward. I'm not one of those guys who is going to sit and lose everything. In January of 2000, there was no market for my pears. We did not make any money, and by March everything was gone. We lost all of our equity and a huge amount of money in five months time... I'm not going through that again.

Armin has had similar catastrophes with his winegrapes.

Armin hopes one of his children decides to continue cultivating the land he as worked hard to purchase and steward; however, he does not expect his children to enter into an occupation that is not economically viable.

One of my boys will follow in my path, but if they don't, that is fine with me too. I did not follow in my father's footsteps. I think my youngest is fairly interested, but stuff happens in farming that they remember. My sons have seen all the pears we left in the trees that one year. We left eight hundred tons of pears in the trees. They just fell. About three years ago I dropped about four of five hundred tons of Merlot [grapes] on the ground. My son Kevin was about eight years old. He had a hard time understanding why I could not sell the grapes... There are things those kids remember: the pears hanging that we could not sell, the grapes on the ground we could not sell.

Armin does not expect his children to farm if they can not make a living doing it. For Armin, his farm must be economically viable to be worth sustaining. Armin has invested much

financially and personally into his farm he seems to be less invested and is conditionally committed to farming than continuing generation farmers.

Armin's and Jack's cases contrast with one another and suggest that growers with established winegrower legacy may be more motivated to continue farming in spite of hardships, economic or other, while the first generation grower is not as tethered to the occupation.

Future generations of Lodi winegrowers: "I want to give my kids the option." Rather than pressure their children into a life of farming, Lodi Rules growers want to give them the option, and a good one at that. "I hope my kids and grandkids have the opportunity to stay on our land and farm winegrapes," said Albert. Sustaining winegrower legacy is contingent on the creation of good opportunities for the next generation, and good opportunities are contingent on economic viability.

Lodi Rules growers want to pass on to their children more than a piece of land, vines, and tractors; they want to pass on an economically viable farm capable of producing a livelihood. They want to offer their children an attractive and good reason to farm. They will leave the decision to accept the opportunity to their children, but they take upon themselves the responsibility of providing that opportunity.

Maggie's comments illustrate the link between opportunity and sustaining winegrower legacy.

I won't force my children to follow in my footsteps, but I want my kids to have the choice. I had that choice. My parents never forced any of us to come back. They presented it is a good option that we could participate in if we wanted to. They wanted us to go away to college. We had the choice to do whatever we wanted to. But now we are all here, and my parents have been good about offering a place in the family business if we wanted it. I want to give my kids that same option.

The need for good options and attractive opportunities for Lodi's younger generation is lacking, according to Kaypee. Just like the rest of the U.S. farmers, Lodi growers are an aging group. Kaypee knows many of Lodi's growers since he is responsible for making winegrape purchasing arrangements for his family's winery. He laments the lack of young growers in Lodi, but is also optimistic the up-and-coming local wineries provide new options for youngsters to return or stay in Lodi.

I would like to see a lot more wineries... It is possible only if more of my generation come back. None of the 72 growers [our family winery buys fruit from] are younger than me. A lot of them are 60 to 70. There is a huge chunk that are 45-60. And there are not many 45 or younger. Younger than me, there are hardly any. The only way we can get younger people back here is with wineries. I don't think viticulture can do it. The appeal to the young generation is the winery lifestyle. But, it's got to be profitable.

Sustaining winegrower legacy is dependant on attractive opportunities that allow the next generation to return or stay home. The establishment of wineries creates this opportunity by adding an additional enterprise to the family business without the family acquiring additional land, which is not possible in developed or heavily farmed areas.

Opportunities created and sustaining winegrower legacy achieved. Young adults are concerned with forging their futures, and are willing to follow opportunities which fulfill their aspirations. The opportunity to enter into their own autonomous role within the family winegrowing business was a key factor in the decision to return home.

As a high school student, Maggie did not imagine herself living in Lodi as an adult. After high school she attended college. She later moved to the East Coast, and then relocated back to California for a corporate job in the Bay Area. She had proven to be competent in providing for herself through her career in business, but when the option to return home to establish the new family winery presented itself, she and her husband decided to redirect their lives and move back to Lodi.

A good opportunity provided by her parents allowed for Maggie's entrance into the family business. Maggie's father had been making home-made wine for decades, and had begun to toy with the idea investing in a commercial winery, but needed help. "I came back to the family farm because I had the opportunity to start the winery. My parents thought starting a winery was a good idea, but they did not want to do it themselves. So I came home and started the process."

The winery was designated as Maggie's job within the family business. Her father was still the head of the winegrowing operation and was the one with the most enological knowledge,

but efforts were made to allow Maggie the freedom and autonomy to find her niche within the family business.

I had a passion for coming back and working in the family business, but not for doing the same thing that my parents were doing. They are not retired yet, and they will continue to farm. Starting the winery was something that I could do myself. I wanted my own set of responsibilities, the chance to start a new project, have it be something that I owned, and was responsible for making it or breaking it myself.

Kaypee's story of returning home to farm the family winegrape vineyard is similar. Kaypee studied agricultural business while in college and took classes in viticulture and enology, and he continued to prepare himself for a career in agriculture by earning a Pest Control Advisor license and learned Spanish in Costa Rica. He was certain he wanted to work in agriculture but was not sure he wanted to work for his family in Lodi. When the family winery expanded, his father was stretched thin to manage both the winery and the vineyard. He was needed to manage the winegrapes so his father could focus on growing their booming wine business. This created an opening in the family farm business for Kaypee.

Dad was running the farm and winery operation and doing everything else on top of that. He was getting overwhelmed, and the winery business was taking off, so I ended up working full time in late 2002. My coming back and working full time for the family winery coincided with our wine business blowing up, and my dad needing help with the farming. He realized that I knew what I was doing. As it turns out I actually learned something while I was in [college], and I took over the vineyard management.

Having their lives ahead of them, being empowered by their families to make their own farm decisions, and being allowed to invest in their own territory within the family operation, the young growers and winemakers were more willing to take on long-term commitments that their parents lacked the energy or enthusiasm for. Maggie's job is the family enologist, and she is not directly involved in their vineyard's management, but she took it upon herself to pursue Lodi Rules certification. Had it not been for Maggie, their family's vineyards would not be certified.

My parents would never do it on their own. I think they are discouraged because they go through all this work throughout their whole life to farm, and every year they still have to worry about paying their bills and

whether or not the wineries pay in time. They don't want to risk it and start a new project. They would still use many sustainable viticulture practices because they want their property to be environmentally healthy but they would never go through the trouble of the record keeping. I was excited about it, and I wanted to be an advocate.

Winegrower legacy is discussed here on the individual and family level for the sake of conveying information clearly, but in reality the distinctions between the two categories are less distinct. Individual growers see their individual winegrower legacy reflected in the whole of their family including their future generations. Sustaining winegrower legacy serves as the core motivation for their participation in the Lodi Rules, and is a highly useful theoretical lens with which to understand Lodi winegrowers.

Winegrower legacy and the Lodi Rules. I have defined legacy, and have described how it is expressed by Lodi Rules growers, but how is winegrower legacy related to the Lodi Rules program and to sustainable agriculture?

Unfortunately, this thesis is limited in answering this important question with certainty since only one grower was first generation. However, this data still points in an interesting direction.

Winegrower legacy may be a determiner of attrition in the Lodi Rules program. As depicted in Table 4, the average number of generations in farming among Originals was 3.5, and the average among Joiners was 3.9. In contrast, the average for On-the-fencers was 1. Keep in mind that the grower in the On-the-fencer category, Armin, has considered discontinuing his participation in the program. He has stated that his future participation in the Lodi Rules is conditional on whether or not an economic premium for certified fruit is realized. Moreover, Armin expresses that his commitment to farming in general is conditional, unlike continuing generation growers who express unflagging commitment. Grower commitment to the Lodi Rules, and to agriculture in general, is greater among continuation generation growers than the first generation growers.

While other grower's may be willing to tolerate greater distress in order to sustain their winegrower legacy, Armin, as the first (and possibly only) generation in agriculture, is less influenced by farm legacy, and may be willing to consider alternative occupations.

Table 4.

Grower category compared to number of generations in farming			
Grower category	Pseudonym	Generations in agriculture	Average generations in agriculture
Original	Joe Bob	2	3.25
Original	PJ Nickels	3	
Original	Albert Frost	3	
Original	Ben Friedland	5	
Joiner	Carly Smith	2	3.9
Joiner	Blue Oak	3	
Joiner	Hahns	7	
Joiner	Roger Seller	3	
Joiner	Maggie	3	
Joiner	Joel Dasher	3	
Joiner	Kaypee	6	
Joiner	Jack Hunter	5	
Joiner	Neal Pert	3	
On-the-fencer	Armin	1	

Anticipated economic gain was the initial motivation for growers' participation in the Lodi Rules, but sustaining winegrower legacy may serve to keep them engaged. In the absence of an established winegrower legacy, higher program attrition may exist. If this assertion is correct, it illustrates an interesting dimension of understanding why growers participative in sustainable agriculture programs and which growers adopt sustainable agriculture programs. Presence of winegrower legacy may be a determiner of grower willingness to adopt sustainable agriculture practices when they perceive a potential for economic gain, and thus a benefit to sustaining their winegrower legacy, as is the case with value-added certification programs such as the Lodi Rules. Moreover, they may be more willing to continue to participate in such programs in spite of unrealized, or difficult to discern, economic rewards.

Lodi's sustainable viticulture motives

The official motivation for creating and participating in the Lodi Rules certification program was to add economic value to certified winegrapes, but it is more than increased value they seek. This section takes a deeper look beyond economic motivation. Higher prices mean

more to them than increased profits; they mean recognition and fair compensation. These growers are of the opinion that the commodity winegrape market they have participated in has not yielded prices that reflect the true quality of their fruit. The Lodi Rules is an attempt to correct this. According to P.J, “Growers back twenty years ago knew they had fruit that was worth more than what they were getting paid for. Today we have fruit here that is more than what we are getting paid for.”

Historically, Lodi has not been one of the California wine regions recognized for high quality grapes or wine. This distinction and the corresponding higher prices has been reserved for California’s North Coast wine regions such as Napa and Sonoma, and more recently, but to a lesser extent, the Central Coast regions like Paso Robles. In contrast, Lodi winegrapes were sold to a few large wineries mass producing low priced generic wines. Lodi winegrapes were treated as an undifferentiated commodity, leaving some growers unsatisfied with the market value of their crops. Their dissatisfaction came from what they saw as a disconnect between the quality of winegrape they believed they produced, and the price they received.

Commodity agriculture: “A grape is a grape” Carly Smith, a long-time Lodi winegrower and winemaker reflected on her past experiences and expressed frustration with the commodity winegrape market. She was one of 13 (93%) expressing this discontent. Carly believed the quality of the fruit she and her husband grew was higher than the fruit from other Central Valley regions, and she had reason to be confident in her opinion. Nevertheless, she received the same price as all other Central Valley growers, no matter the quality.

Our buyers would say ‘Best vineyard in Lodi.’ At the time I thought to myself, if we have such great grapes how come we are getting such a low price for them? Our buyers enlightened me that a grape is a grape. They would say our grapes were great quality, but when they paid us for them, there was not difference between ours and any other Lodi grape.

Recognition: “Somebody is making money off of winegrapes, why can’t it be me?” Seven (50%) of growers brought up the topic of inequitable relationships with wineries during conversations about the commodity winegrape market. Wineries set the price, and growers were forced into the role of “price takers.” Wineries were benefiting from lower prices and higher quality fruit, but this was a cost to growers. Proportionally, a greater percentage of small (50%) and medium (80%) growers indicated inequality than did larger growers (25%).

This finding is in align with the typical relationship between farm size and ability to prosper in commodity agriculture. Larger growers benefit from economies of scale, and are better equipped to economically prosper in commodity markets.

It is a common practice for wineries to mix winegrapes from different regions. Wineries are allowed, within legal parameters, to label a wine as being from one region even when using a portion of winegrapes from a different region. This practice of *blending* is used to achieve various wine attributes, and enologically speaking is not a matter of contention. However, economically, the practice is not perceived by Lodi growers to be a favorable one. Hahns was dissatisfied when he learned the winery he sold his fruit to had begun using Lodi grapes in wine labeled as being from a higher priced region, but continued to pay him the same price.

Two things happened that made you start to think, 'Hey, what's going on here?' We were selling fruit to Gallo, and they told us it was going into hardy burgundy which was cheap jug wine that went for five or seven dollars a gallon. But one year they told us to truck our grapes over to Sonoma. 'What's in Sonoma?', we asked. They said they were using our fruit in a new label. We started to realize that our fruit was being used to make higher quality wine than hardy burgundy, but we were still being paid the same!

In this case the perceived inequity resided in that the winery recognized Lodi's fruit to be of enough quality to ferment it into a higher priced wine, yet this increase in value did not make its way to the grower.

The second item that made Hahns think, "Hey, what's going on here?" was that winegrowers from other regions receive higher prices per ton of fruit than Lodi growers do. "The other thing that really made us stop and think was the difference between what the Sonoma growers earned compared to what we earned. Over there they get three times the amount per ton than we do here in Lodi... There is an inequity here." In 2007 the average price paid per ton for Zinfandel grapes from Sonoma was \$2,409.14. In Napa, growers received \$2,551.67. In contrast, Lodi growers received \$428.32. In this case, these two regions earn nearly six times that of Lodi prices. Similarly, Cabernet Sauvignon grapes sold for \$2,225.48 in Sonoma, \$4,145.31 in Napa, and \$336.11 in Lodi. In this case, Sonoma and Napa prices

were 6.5 and 12.2 times that of Lodi prices respectively (calculated from USDA NASS 2008a).

These differential prices per ton of fruit are dramatic, but must be interpreted in context. Lodi vineyards typically produce higher yields than do other regions. Economically speaking, this partially allows for the substitution of quantity for quality, and at times means Lodi growers receive greater dollars per acre compared to growers in some higher price regions such as the Central Coast (Broome and Warner 2008). Other factors such as land values and taxes, differences in labor inputs, and economies of scale further complicate estimations of which region is better off economically.

The statement, “Somebody is making money off of winegrapes, why can’t it be me?” is one of perception, and it must be recognized that while legitimate in some ways, an objective comparison of regional net vineyard income may or may not show a difference in profit. The point is that Lodi growers perceive a gap between the quality of their fruit, and the recognition (economic or otherwise) that they receive for their fruit.

Relationships between buyers of commodity winegrapes and growers were also symptomatic of this inequity. P.J. remembers his father’s relationship with one large winery in particular. The winery demanded specific viticultural practices and fruit quality standards but was unwilling to pay higher prices for the growers efforts to reach the standards. In spite of this, his father was committed to maintaining the relationship out of a fear that no other, or better, option existed.

My dad was primarily a Gallo grower. Gallo operates now the same way as they used to. They always have their grower under their thumb. [Dad] would be on the phone having a panic attack about something they were not happy about. We were saying ‘Dad, it’s not worth it. If they are going to treat you that way it is not worth it. Go find a different winery. There are others.’ He didn’t want to leave them. ‘No, we can’t leave them, we don’t have those other choices, and we don’t want to make Gallo mad.’ I think he was unhappy with the relationship with them. They did not appreciate what he was doing... There were times when that Gallo relationship was one of strength versus... well, let’s just say it was not a mutual relationship.

P.J.'s description of his father's relationship with the winery, and other grower statements presented earlier, suggest that price and recognition can not be discussed separately, and that Lodi growers did not feel as though they received enough of either to reflect the quality of their fruit. As P.J. said, "They did not appreciate what [my father] was doing."

Realizing Lodi's quality: "When my brother made the first wine, it surprised the heck out us. We had no idea we could make that good of a wine in [Lodi]." Six (43%) of the interviewed Lodi Rules growers were or are amateur winemakers, and seven (50%) currently own and operate wineries. For most growers home-winemaking was simply a pastime, but their wines provided insights they did not expect and served to inspire growers' confidence in Lodi's winegrape quality. It also contributed to the rise of a new vision for Lodi as a wine region. The topic of winemaking may seem like a departure from the sustainable viticulture topic, but it is included because it explains why the local growers began to understand the quality of their winegrapes and to desire recognition for winegrape quality.

Carly had moved to Lodi as a young school teacher. Not knowing many people in town, an acquaintance invited her to a home-winemaking social event at a private home. This party was her first introduction to winemaking, as well as her first introduction to her future husband. His family were long-time Lodi winegrowers, and he had been making home-made wine for some time. As Carly put it, they "decided to live happily ever after," and home-winemaking became something the couple participated in together. As is commonly the case, the couple gifted wine bottles to family and friends during Christmas. Her words capture juxtaposing opinions on industrial and home-made wine.

Having done some years of home-winemaking, ten or more, it was frustrating to us to know we were making a better wine than what people tell us was [commercially] represented by Lodi. We found that with our little home-wine operation... people were liking our wine. People were saying this is really good wine.

After a number of years as armature winemakers, Joel and his brother decided to build a commercial winery in the late 1980's. At the time there were few Lodi owned wineries. Their winery, Casa de las Viñas, was one of the few. Their investment was a risk, but the brothers saw potential in their wine. "When my brother made the first wine, it surprised the heck out us. We had no idea we could make that good of a wine in this area. It was

excellent, and could have competed with Napa.” I include this quotation not to argue that Lodi’s wine could or does match up to Napa’s. I include it to depict the perceived possibilities home-wine making opened up for Lodi growers. Home-wine making was certainly an important part of Lodi’s evolution as a wine region, fueled an important shift in cultural capital, and led to a sea change in the minds of Lodi growers.

Friends, family, and the Lodi winemakers themselves have obvious biases when interpreting the quality of Lodi wines, but as the region’s early vintners like Carly and Joel began to extend their reach into the industry, external recognition of quality was earned. This recognition came in the form of high placing in wine ratings and competitions.

The *Wine Spectator* is an influential and popular wine magazine whose staff evaluates wines on a one hundred point scale and publishes the ratings (Wine Spectator 2008). As a surprise to everyone in the late 1990’s, Carly and her husband were awarded an unprecedented rating for Lodi wines, but the accolades come with mixed feelings.

In 1995 our Zinfandel received a 90 score in the Wine Spectator, which was the first 90 score for Lodi appellation wine. It was so unusual that the Wine Spectator, who generally did not like to review Lodi wines, came out to take a picture. We got calls from New York, and it was very exciting for us. This was our second commercial year... The Wine Spectator does not like to review Lodi wines, because, I quote from them, ‘It is a lifestyle issue.’ They felt that people interested in wine would not be interested in the culture and general environment of Lodi. Wine is about fancy restaurants, rolling hills, and interesting culture, and they felt Lodi had none of that to offer.

This quotation serves to illustrate the far-reaching disregard of Lodi as potential quality winegrowing region.

In the early 1980’s when Joel and his brother entered a California wine competition sponsored by the San Jose Mercury News, they did not expect to win any awards, but their unexpected success instilled in them confidence in their own potential as well as the potential of Lodi as a region.

One of the first competitions we entered was the San Jose Mercury News judging. There was a one page article about that contest. It said “Judges See Red.” One of them was Case de Las Viñas, our winner!. It was a Cabernet. Right there I thought, you know, Lodi has potential. That was

exhilarating. Right there I thought, if we can do this on the first try, then we have potential. I remember taking that article over to the [Lodi Winegrape] Commission and they were flabbergasted too... From there on, my attitude toward Lodi was that we could be much better than we are.

The challenges to realizing recognition for Lodi's quality were industry-wide, to be sure, but Lodi growers themselves had to also be convinced of their own potential. Case de Las Viñas' award shocked Joel and his brother, and changed their opinion of their own region.

From realization to established reality: "The way you improve the situation is you take your own quality grapes, make your own quality wine, a put it in your own bottle." P.J.'s father did not see a better alternative other than tolerance for inequitable relationship with Gallo, but his children challenged his perspective. As unfair as the relationship may have been, the security of something is better than nothing, and it is understandable why P.J.'s father stubbornly remained committed to meeting the Gallo's demands.

How to create more and better options? Lodi growers believed the quality of their winegrapes was not reflected in the wines representative of their region or in the prices they received, and wine savvy consumers' opinion of Lodi wines were equally dim. An increasing number of Lodi growers began to create their own options on both the enological and viticultural fronts. As Jack put it, the solution on the wine end went something like, "The way you improve the situation is you take your own quality grapes, make your own quality wine, a put it in your own bottle. That is what a lot of winegrowers around here are doing." In fact, 7 (50%) of Lodi Rules growers interviewed currently own a commercial winery in addition to their winegrowing business.

As for the winegrape market, the Lodi Rules aims to accomplish a similar effect: increase the quality of Lodi winegrapes, increase value of Lodi winegrapes, and retrieve a representative price. By adding value to their wine and to their winegrapes, Lodi growers are attempting to create an alternative to the commodity winegrape market, earn recognition for the quality of their product, earn fair prices for their fruit, secure economic viability, retain their relationship with their land and occupation, and ultimately sustain their winegrower legacy.

Social capital and building Lodi's sustainable viticulture programs

Why has the Lodi winegrowing community developed into a leader in sustainable viticulture programs? To be sure, Lodi growers have been motivated by various factors, especially by increasing the value of their fruit, gaining recognition, and ultimately sustaining their winegrower legacy. However, motivations are necessary, but not sufficient, in explaining the development of Lodi's sustainable viticulture programs. They explain the "why," not the "how." Sustainable agriculture programs like the Lodi Rules are the product of collective agency among community members (Warner 2007a). With this in mind, we must understand the social infrastructure which has allowed Lodi growers to positively affect their situation. This thesis did not attempt to map or measure social infrastructure; however, the grower interviews suggest that the concepts of social capital is useful in understanding Lodi's winegrower community and explaining their accomplishments. In the following pages I use the concept of social capital to explain how Lodi has come to be a maverick sustainable viticulture community, and how Lodi growers are employing sustainable viticulture to sustain their winegrower legacy.

Lodi's accomplishments. In earlier sections of this thesis I discuss the seminal efforts of Lodi growers, such as the state's first regional winegrape commission, the first sustainable viticulture workbook, and the first sustainable viticulture certification program. I will not repeat this information, but will present some data which elaborates Lodi's accomplishments.

Albert is politically active in the California and the national wine industries and was an influential actor in the establishment of the Lodi Winegrape Commission. "We had the first winegrape commission. Every other area in the state had the same opportunity at the same time, and Lodi was the first." What community-level social characteristics allowed Lodi growers to be the first group to take legislative action to amend the existing California state law (which allowed the formation of state-wide agricultural commodity commissions) to permit regional commissions?

Before moving to Lodi, Roger had worked in various winegrowing fields and in different wine regions. His experience provides him with the perspective to compare other regions to Lodi. "Not being from Lodi, I moved here by choice. I am humbled. Really - I'm humbled

by how progressive the growers of this region are where they have chosen to put their money.” Why is it about the winegrowing community of Lodi which stands out to Roger as being more progressive?

Roger also explained Lodi’s uniqueness by using explanation involving the workbook as an example.

I think this is the first time a book has ever been written by growers and researchers to put together what ends up being not only a workbook but an exceptional viticulture text that is grower-friendly... There has not been anything as good as the Lodi workbook since Winkler’s book in the 1950’s. It is amazing that an industry our size, with the amount of jobs and money we generate, that we have not been able to put together an excellent viticulture text in 60 years... it would seem to be that a new edition on all those things we have learned in the past 60 years should have come out by now, and it did. It was put together by the growers of Lodi.

Why was the state’s first sustainable viticulture workbook composed by Lodi growers and not those of another winegrowing region?

Bonding social capital. Lodi’s accomplishments are no surprise to Roger. He sees the bonding type relationships among growers as a factor leading to the community’s ability for innovation and responsiveness.

It was natural for Lodi to develop the Lodi Rules because of how cohesive the community is... I’ve lived in many different places and I have farmed in or was associated with many viticultural areas. I have never been in a region that has so much cohesion among the growers as Lodi. To me, it is not surprising at all that it is happening here.

Bonding of social capital within Lodi’s winegrower community. Seven (50%) of Lodi Rules grower narratives indicate strong bonding social capital among community members.

A history of cooperation among Lodi winegrowers. Lodi winegrowers have historically employed a cooperative strategy to achieve economic security, and the Lodi Rules is far from the first collective effort in the area. In reflecting on their community’s history, respondents identify the now absent, but once common, winegrape cooperatives as indicative of Lodi’s cooperative culture.

One thing that Lodi had, stronger than any other wine region... is a cooperative system that already existed... Many Germans settled here they and they were used to a cooperative system. Growers used to sell their grapes to the cooperative. The cooperative mentality is still part of the ingrained thought process of how people here work... They had a tough background. They held together - tight. In the 50's and 60's the price for grapes was low, it was unsustainable. When the grape price when soft, they get together, and said we need to work together. It is an amazing history. I'd love to read the book someone is going to write someday on the grape coops of Lodi.

A majority of Lodi's settlers were German immigrants who made their way west from the Dakotas (Kennedy 1994), and the history of Lodi's winegrape cooperatives has been well documented (Kennedy 1994; Waybret 2002; Welch 1989). After the repeal of Prohibition in 1933, wineries throughout California resumed production, and competition between them was stiff. As a result wineries attempted to reduce their costs of production by lowering prices paid for winegrapes. A 1933 *Lodi News Sentinel* article reported "[Lodi growers] felt that commercial wineries were taking advantage of them by offering low prices for grapes maturing on the vines," and that "They were not sure that the commercial wineries would buy the entire crop of grapes" (As quoted by Welch 1989: 3). According to an article published in the *San Joaquin Historian* (Welch 1989), low prices and post-Repeal industry growing-pains, and Franklin Roosevelt's New Deal agricultural lending programs spurred Lodi growers to consider pooling their resources to establish cooperative wineries which they would own themselves and would operate in their best economic interests. Between 1933 and 1936 five grower-owned wine cooperatives formed in Lodi, and several more were established within the San Joaquin County. Their motivation was to secure a fair and lucrative market for their winegrapes, and to benefit their local economy. In a 1934 *Lodi News Sentinel* article, one founder of a cooperative was quoted as saying "We intend to be loyal in every way to our community" (As quoted by Lea and Kennedy 2002).

The following quotation from Joel gives a first hand account of the cooperative system's benefits.

Before Mondavi's Woodbridge we had coops. We had Allied Grape Growers and Guild Winery. Coops were more stable than the open market. We were all part owners. At the time, Gallo was pretty difficult to work with. In 1977 we bought one of the first harvesting machines in

Lodi. We were heavily invested in it, but Gallo would not buy the fruit because of the machine macerated the grapes. Even though we had a lot of acreage with Gallo we decided to switch completely over to the coop. In fact, Guild coop was paying a one percent premium for machined grapes because it was easier for them to process. They did not have to de-stem. That one percent was to compensate for the lost weight of the stem since the machine harvester shakes the grapes off the stem out in the field. Guild closed in the early eighties. The coops all went broke.

The cooperatives were not the only collective action taken by Lodi growers to strengthen their economic or public position. As Albert tells it:

Even before the [Lodi Winegrape] Commission, there was the Lodi District Grape Growers Association, which is now about 60 years old. It came into existence because of a problem. There was 2,4-D drift, and it was causing problems in the Tokays and Carignans. As a group Lodi growers decided they needed to ban together to do something about the drift. That is the main reason they came into existence.

Another example of Lodi's cooperative nature was described by Asher (2002.) In 1956 Lodi growers petitioned to Washington DC for legal distinction as a "district of origin," which allowed them to use Lodi on their wine bottle labels. At this time Lodi's winegrape acreage was rapidly growing and cooperative wineries were producing large amounts of wine. The district of origin designation was an early effort to establish regional branding.

These many collective efforts discussed in this thesis were grower-initiated, and resulted from the collective action of like-minded members of the Lodi winegrowing community who shared similar goals. Bonding relationships among Lodi growers have historically been a factor in the community's ability to effectively organize themselves to achieve their goals. Lodi's history of cooperation hints to the similar efforts of more recent times designed to protect their economic viability against various threats, and is presented here as a suggestion that a strong cultural foundation of bonding of social capital existed in Lodi.

Bonding social capital and knowledge sharing: "Any information or advice I needed, all I had to do was ask." The bonding relationships among members of Lodi's winegrowing community have also served as channels for reciprocal sharing of winegrowing knowledge, which has in turn, played a role in raising the level of winegrape and wine quality for the region.

As Albert said, “There was a real sharing of information. There really were no trade secrets. None. That was a smart thing we did.” Growers subscribe to the notion that by sharing knowledge they will all benefit – intra-regional cooperation is preferred over competition. As the wine industry adage goes, “One good bottle of wine is benefits us all, one bad bottle of wine is bad for us all.” This saying is the colloquial version of Lapsley’s (1996) concept of regional branding, where the reputation of an given wine region, can only be achieved through collective action. Successful regional branding is achieved through the sharing of knowledge, technology, and regional promotion.

Lodi’s close-knit winegrowing community provided the social channels for flow of winegrowing knowledge and information. Joe’s statement illustrates this point.

When I first started farming, I found everyone here very friendly and helpful. Any information or advice I needed, all I had to do was ask... If I call up Tom and ask him for advice about what to do with my sick vines, he will be like ‘Oh heck ya, let me jump in my truck, I’ll be right over.’ I think it is a small town mentality... everyone wants to help each other. There is a synergy here. By working together we can produce something that is bigger than its parts.

Maggie’s words also illustrate the bonding relationships which facilitate knowledge sharing.

It is small enough of a community that if you don’t know someone personally, you know their name, and it is easy enough to call them up... Everyone is so encouraging and helpful. It is not super competitive I can call up anyone and ask them for help and they are more than willing to share because it is all about making Lodi a better wine region... It is about building up Lodi, about talking up Lodi’s story, and through that, promoting your own wine business.

The relationships between Lodi growers are such that they are accustomed to sharing winegrowing knowledge with one another. The bonding relationships among them facilitate this reciprocity and establish knowledge sharing as a cultural norm. It is considered acceptable that growers ask for advice and is expected that others reciprocate by offering advice – a culture of knowledge sharing.

Bridging social capital. Bridging social capital was reported by six (42%) reported by respondents. Of these six, two were large growers, four were medium, and none was small. This suggests that medium and large growers may be more active in organizational roles and

are more aware of and involved in bridging social capital relationships associated with such roles. It also suggests that medium and large growers are more socially connected within the Lodi wine community (bonding social capital) and outside the community (bridging social capital).

These growers discussed bridging social as it pertained to their past relationship with Robert Mondavi and his Woodbridge winery, which is located in the Lodi's wine area. The remainder of this discussion will describe bridging social capital relationships as they pertain to Robert Mondavi's Woodbridge winery and Lodi's social infrastructure.

Robert Mondavi, a Lodi native, was a powerful influence in the development the wine industry in Lodi, in California, and the United States. He impacted the industry on a global scale. His personal social capital allowed him to access resources which amounted to what has been referred to as the Mondavi family's "wine empire" and "dynasty," and his ties to Lodi provided a social capital channel for these resources to benefit Lodi growers.

According to Albert, who was one of Mondavi's first contracted growers:

Robert Mondavi gave a vision to Lodi. He told us, "I know what you guys can do", and he convinced us that we could do it. In the late seventies the wine business was not very healthy here. Not healthy at all. He came with a vision. He grew up her and knew the area, the soil, the climate, and the vines. It was a mater of convincing the growers that they could be part of his vision and be successful doing it. No doubt about it, he was right.

Mondavi and his charismatic personality did inspire growers, but the realization of increased quality came from more than inspiration. Mondavi initiated several programs designed to raise the level of winegrape quality in Lodi. Increased quality was seen as a benefit to both the growers and to Mondavi, as both stood to gain economically from the production of higher quality products.

Bridging social capital and increasing winegrowing human capital. For those Lodi growers who sold their fruit to Mondavi (not all growers did) their relationship with Mondavi was more than a simple exchange of product for payment. Mondavi provided growers with various resources to increase their winegrowing human capital, produce higher quality winegrapes, and strengthen the economic viability of growers and Mondavi's Woodbridge winery. Albert summed up Mondavi's strategy well:

There were a lot of meetings [with growers and winery staff] to talk about cultural practices and how what we do in the field can affect what is in the bottle. This is what we want in the bottle; this is what we did in the field; how can we do it better. It was through this education process that we learned how to grow better winegrapes.

Grower education was a primary objective of Mondavi's quality improvement strategies. These programs were participatory. They required growers to become involved in the process of learning, rather than simply being given directions. Advances in winegrowing techniques were becoming abundant through University of California research in the early 1980's, and Mondavi played a pivotal role in disseminating this knowledge to growers through participatory educational programs. According to Joel:

What I enjoyed about growing for Mondavi was the people and the partnership we had with the winery. Other wineries, the grower was always looking up to the winery for... well, lets just say it was not a partnership. Mondavi brought you in and you became part of the process of improving quality. Other wineries told me what to do but did not explain why we had to it.

Leaf pulling was a new winegrowing technique at the time. By removing leaves from the base of the canes (current year's growth; stems or branches), the canopy around the ripening fruit becomes exposed to sunlight and increased air circulation. This practice benefited fruit quality and also decreased the fruit's susceptibility to major winegrape pests. This is Joel's account of this time of rapid innovation and learning.

We had some Sauvignon Blanc that we were experimenting with leaf pulling. That was one of our first fields that went to Mondavi. These new practices were exciting. I had been out of college ten years at the time, and all of a sudden here came some new stuff. Let's try it! I wanted to be on the front line with new ideas and experimentation. I wanted to get involved. I found it exciting and interesting; new and different. It can get boring when you do the same thing every year. I'm always looking for new ideas that might improve my business.

Mondavi also sponsored groups of Lodi growers to travel to other winegrowing regions within California and internationally. The purpose of these trips was to expose growers to different and new winegrowing knowledge from other winegrowers and winemakers with the objective of growing higher quality fruit. "We had what was called quality enhancement groups," said Albert.

We traveled all over California together, we traveled to Australia for several weeks. Sure, we had a lot of fun, but it was a work trip. We visited a lot of wineries and talked to a lot of growers. We went to southern France, too. We went all over and saw different ways people were growing winegrapes. This was done as a group! Mondavi facilitated this. Because of who they were, because of their name, we were able to get to meet the right people and get something out of these trips. Our group probably had two hundred growers at the end.

The Mondavi funding, which made these trips possible, was one resource channeled to Lodi growers, but as illustrated by this quotation, the social capital relationships which Mondavi possessed and fostered resulted in a human capital boon to Lodi growers.

Mondavi also initiated a program which kept the wine made from each grower's fruit separate, and thus, provided an opportunity for growers to taste the differences in wine made from their grapes versus wine made from the grapes of other growers. This was another grower education strategy designed to increase fruit quality. Albert told me:

In the early eighties the Mondavi family wanted to show the growers the results of our labor... They kept wine lots separate. Every year, starting in [19]83 or 84, we started sitting down and tasting every lot of wine made from the grapes we grew. We were able to taste ours against wine lots made from other growers' grapes. We got to taste ours against the best. Then we started talking about what the growers of the best lots were doing from a viticultural standpoint compared to what we were doing.

According to Asher (2002: 271) "When the Mondavi winery began bringing growers together to compare wines, their perspectives were soon raised beyond questions of healthy and unhealthy [vines], economic and uneconomic, sugar bonus or no sugar bonus to consideration of why one wine had more flavor, another more intense color, or yet another better balance." This was yet another practice which increased grower human capital and making the connection between winegrowing practices and wine quality. Asher went on to write, "Mondavi brought to this Lodi enterprise policies that had worked for him in Napa Valley, one of which was to use small-winery techniques no matter how big the winery. This practice made possible a program that changed the way Lodi growers saw themselves and their crops" (2002: 271). This program was one which growers themselves could not have orchestrated themselves.

Mondavi's quality enhancement program is an example of bridging social capital, and its major contribution was to grower human capital and to growers' ability to produce higher quality winegrapes. Mondavi reframed growers perspective and ability from farmer, to *winegrower*.

Lodi, Mondavi, and Social Infrastructure: "The community mentality was already here, Mondavi was smart enough to figure out how to light the flame." Robert Mondavi was a mover and shaker in the wine industry, and he used his social capital to channeling outside resources into Lodi's winegrowing community. These resources were not ill-spent on Lodi growers. Lodi's established bonding relationships served as the internal social infrastructure to effectively use the incoming resources. Albert worded it flawlessly: "The community mentality was already here, Mondavi was smart enough to figure out how to light the flame."

The Lodi-Mondavi marriage was noted by five (36%) growers as formative in Lodi's progression toward the formation of the Lodi Winegrape Commission and the regions later success with sustainable viticulture accomplishments. Albert has been intimately involved in the breadth of these efforts and his insights are telling.

Mondavi was not actively involved in putting the Winegrape Commission together, but his ideas were the background to the small group of growers which got together to try and figure out how we were going to put the Winegrape Commission in place. Without Mondavi, would we have had the drive to get that done? I don't know. [The Mondavi family and their winery business] was not actively involved in it, but, a lot of growers who were early Mondavi growers were actively involved in the formation of the Commission. From the Commission came the IPM program which developed into the Sustainable Winegrape Program and that developed into the Lodi Rules... The Winegrape Commission was one of the big concepts that brought Lodi to where it is. Mondavi and the Commission, being there at the right time and the right place, and taking advantage of opportunities is the reason Lodi has led in sustainable viticulture. No question about it.

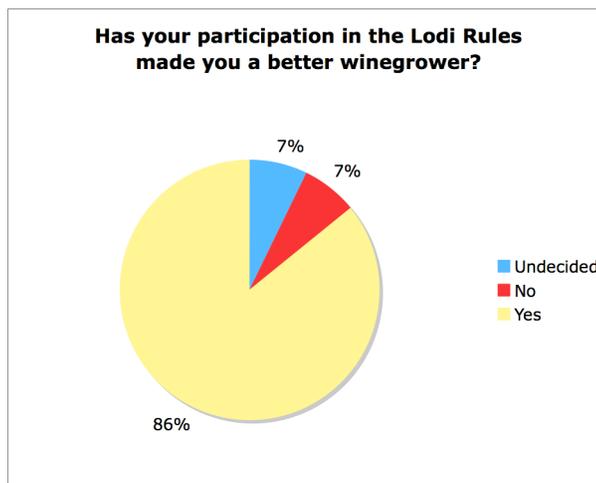
The social infrastructure of Lodi was, and continues to be, an indispensable tool in their development of sustainable viticulture programs. As I have described, the path of development began with Lodi's culture of cooperation. Later, Mondavi was able to contribute outside resources which were well utilized by Lodi growers. Over time, Lodi's social infrastructure matured and eventually coalesced into the Lodi Winegrape Commission.

Today, the Commission is the developmental hub of the region's viticulture and wine economy, and has successfully implemented programs such as the Lodi Rules, which were designed to strengthen Lodi's winegrowing economy, and in effect, helping to sustain Lodi winegrower legacy.

Political capital. Political capital was evident in six (43%) growers' interviews, but it is not explored in this thesis in the depth of other topics. These growers represented all grower categories proportionally: two were large, three were medium, and one was small. This leads to interesting questions regarding farm size, political capital, and which growers possess the social power to steer how, and if, sustainable agriculture programs are developed. Power to direct a community's resources toward establishing sustainable agriculture programs does not seem to be overtly associated with one size category, although the small size farm was less strongly represented. Moreover, of these six growers, three were originals, and of these three, one was a small grower, one was a medium, and one a large. Originals were active in the development of the Lodi Rules program, and this further reinforces an assertion that farm size may not be a determiner in which growers are influential in directing resources necessary to create sustainable agriculture programs. With this said, this data hints that a larger sample may show medium and large growers to have more political capital.

Extending sustainable viticulture through human capital development

Each grower begins participation in the Lodi Rules program with a base of agricultural knowledge. The newest of these winegrowers has less than a decade of viticultural experience, but most have been involved with winegrowing for their entire lifetime. Some growers are more familiar with sustainable practices than others, but no matter their level of sustainable viticulture knowledge and length of experience, the process of becoming certified and maintaining certification increases their sustainable viticulture human capital. As depicted in Table 5, 12 growers (86%) agreed with the statement that the Lodi Rules has made them a better grower.

Table 5.

The process of certification is rigorous and demands critical reflection and participatory learning. It also provides a framework which encourages, and at time requires, growers to contemplate and refine their definition of sustainability; set short and long-term farm sustainability goals; increase their attentiveness to their vineyards and employees; keep detailed records; analyze field notes and data; make systematic, thoughtful, and informed decisions; and it requires familiarization with the sustainable viticulture standards described in the sustainable viticulture workbook. Consequently, these 12 growers agree that the rigorous process of certification has helped them become a “better grower.”

The Lodi Rules has not only affected grower’s actions, it has affected their thinking, how they approach viticultural decision making, and farm management. According to P.J.:

I think the process of getting certified makes you analyze every bit of your farming, and question everything you do, and ask if there is a better way to be doing this. Secondly it helps you understand what you are doing as opposed to doing it the same old way. It is an educational and a learning process. It is an effort. It is kind of like going back to school for farming. We farmers either think we know everything or get into a comfortable pattern... I think it changes how I see my farm within the ecosystem. What you get out of this process is you become more aware. You become more aware of what your impact is on the farm. To say it makes you more aware is a great way to summarize what you get out of the process.

Pushing the human capital envelope: “The standards ask you to look at what you are doing, and figure out how you can do it better.” In the case of Roger, he perceived his familiarity with sustainable viticulture to be strong and thought of himself as an “enlightened guy” on

the topic. He implemented agroecological practices in his vineyards on his own initiative, and had a history of working with the concept and its application. His base knowledge was high, but he thinks that the certification process as well as his involvement in composing the workbook has elevated his sustainable viticulture competency to an even higher level - a level which he believes he would not have otherwise reached.

I'm thinking I'm doing things right, I've done this in the past, I've done organics, you know I'm a pretty aware and enlightened guy. I was part of the first writing of the workbook. We were sitting around the table analyzing chapters. I'm looking at all this information talking to researchers and I'm seeing all these holes in my own program... After an experience like mine, growers can either shut the book in disgust or say, wow, I have some room to grow. I always thought I was doing the right thing. Then I exposed myself to other ideas, particularly through such a great workbook, and I realized I had many holes in my sustainable viticulture farming plan.

Neal is much less willing to engage himself beyond the minimum requirements for certification. In spite of his minimal engagement, he stated his growing practices have evolved as a result of his participation. “There are a few things we have changed, pushed the envelope on, and experimented with because of Lodi Rules.”

Roger and Neal are on opposite ends of the spectrum in terms of willingness to subscribe to the sustainable viticulture. Their cases demonstrate the instructive and progressive capacity the Lodi Rules program has on growers' sustainable viticulture human capital since both, in spite of their differences, have increased their sustainable viticulture human capital.

P.J. pointed out that his practices have changed not only in the quantity of practices he employs, but also in how he implements them. He now approaches farming more systematically. “There are a lot of things I now do differently, but it is not the whole picture to say I do more things, it is that I do them with more thought, at a different time, or in a more calculated way.” This holistic approach and way of thinking on the part of the grower is fundamental to sustainable farming systems.

The rigors of the certification process places the grower into a participatory learning experience. P.J. stated that “The standards ask you to look at what you are doing, and figure

out how you can do it better. The process of being certified means you have to do a lot of paper work... It takes a lot of writing, and you have to put a lot of thought into writing.”

Human capital and the nebulous boundaries of certification. Sustainable winegrowing human capital is embodied by the grower, and is not restricted to certified fields. For practical reasons, most growers do not certify their entire farm. Some of their fields are certified while others are not. Formally, only certified fields can claim to be sustainable, but growers assert that they apply their sustainable winegrowing human capital to all their vineyards, and for the most part, do not restrict their sustainable winegrowing approach to certified fields. According to Jack:

We farm a total of 6,000 acres, and we have about 900 acres in the Lodi Rules. That does not mean I'm... farming the other 5,100 acres with unsustainable practices. They are not certified, but I'm implementing about 95% of the sustainable practices on those 5,100 acres of uncertified vineyard. It would take forever to do all the paper work to certify the rest of the acres, so I choose to not to. The beauty of the program is that I'm farming sustainably everywhere.

Albert is one of California's largest winegrowers. He lives in Lodi, but his family's vineyard operation extends to nearly all of the state's winegrape regions. All of Albert's Lodi acreage is certified, but he applies his sustainable viticulture human capital to the extent of his state-wide operation.

We grow all our grapes in our entire operation the same way. From here in Lodi, to the Delta, Napa, Sonoma, down to the Coast, in Monterey, and all the way down in Santa Maria. Our Lodi acres are certified, but the rest are not. Those other grapes are not certified because they are not in Lodi; therefore, are not qualified, but they are all farmed the same way. It is all done in the big picture of the Lodi Rules... A few years ago we changed our whole company over to biodiesel. The concept started here because of Lodi Rules, but it has spread to our whole operation.

These cases support the notion that sustainable viticulture is not simply a to-do list of best practices. It is a different way of thinking, of making decisions, and approaching farming in general.

Increased human capital of hired labor. Vineyards hire laborers to accomplish many essential viticultural practices. The Lodi Rules requires growers to enhance the sustainability of their laborer's human capital through creating a written human resource plan, carrying out

employee orientations, holding safety training, establishing safety rewards programs, offering professional training and development opportunities, and facilitating teambuilding exercises. These activities enhance the human capital of employees and have positive impacts on the economic viability of their farms. (A discussion on benefits to the laborers is located in a later section of this thesis).

One grower described the benefit as “many more eyes scouting my fields.” Since becoming certified, Armin has taken steps to train his employees to identify vineyard insect pests. Early detection of pests is essential to effective and less costly control, and since his employees spend more time in the vineyards than he does, they are in a better position to detect pest problems early. “If you are not paying attention to the pests out there, you can lose fruit quality or you can end up chasing problems that could have been solved by paying closer attention earlier. I do more of those things that I used to do, and I feel as though I am a better farmer for it.” Armin mentioned that over the past two years, his employees have been the ones, not him, to identify insect pest populations above tolerable limits. Early detection led to less costly control, less environmentally harmful control, and less human contact with potentially unhealthy pesticides. In summary, increased human capital of laborers offers growers economic benefits.

Long-term sustainability visioning. Lodi Rules growers’ sustainable viticulture human capital reaches into the realm of business and family planning. At the onset of a grower’s participation in the program, the grower is required to compose a written sustainability statement. Each vision is unique, and growers are encouraged to include elements such as how they wish to see their natural resources and the wildlife on their land treated; quality of life standards for their family, employees, neighbors and other community stakeholders; and specific intermediate and long-term sustainability goals.

Jack was the only grower who brought up the sustainability statement in the interview, but it is included here to show all areas of human capital which may be impacted by the Lodi Rules. Jack took the visioning process seriously, and feels as though his family has benefited from this introspective activity. He initiated family discussion on the topic, and as

a consequence, their family has incorporated concepts of sustainability into many aspects of their farm business.

We asked who are we and why are we doing this sustainability program? We tried to get our company vision down. This is something most farmers don't do. You know, we get up, go to work, try to make some money, and go to bed. This has made us think a little differently. We now try to make farming sustainably an every day thing. We are trying to incorporate this into every decision we do out there.

This visioning practice increases Jack's, and his families, human capital by requiring growers, and their families, to reevaluate their fundamental strategies, farm goals, and fundamental principals through critical introspection.

Sustainable viticulture: "It was right up my alley." Human capital was indeed increased by grower participation in the Lodi Rules, but it also contributed to the adoption of sustainable viticulture and receptivity to the Lodi Rules.

"It was right up my alley, and fit in with the way I think," Roger said of the agroecological vineyard practices promoted by the Lodi Rules. Similarly, Carly said "I could relate to what [the Lodi Rules] was trying to do." What allowed Roger and Carly to easily and effectively adopt a sustainable viticulture mindset? Both Roger and Carly have earned graduate degrees in the biological sciences. Consequently, they possess an astute understanding of ecological systems, know how to employ a scientific approach to decision making, and understand the empirical foundations of sustainable viticulture.

Throughout Roger's life, plants have been a fascination and have persisted as a theme in his academic and professional careers. "I just really like plants. I love plants. I used to wonder if I should have been a botanist. As a student I loved taxonomy, and I loved studying living beings... I didn't know where this was going to take me, but my learning progressed, and I took various paths of study... I always came back to plants." Roger earned a graduate degree from UC Davis in plant pathology. His education exposed him to ecological concepts, and it prepared him to understand the agroecological principals of the Lodi Rules. "I had been thinking of these concepts during my time studying plant pathology so it was a natural leap to take it to the vine."

Carly has also earned a graduate degree in the biological sciences. She too studied plant pathology, and in doing so became versed in botany, chemistry, and ecology. Carly's education and training prepared her for approaching winegrowing ecologically and scientifically. Carly is articulate, and her own words describe how her education has proven to be a valuable human capital tool in her winegrowing, and how her approach contrasts the more traditional and culturally embedded approaches of her husband, with whom she farms.

When I first met [my husband], he and his dad irrigated the vineyard three times over the summer: early June, early July, and early August. After those three irrigations they closed the ditches. I asked 'Why do you do that?' 'The grapes need water; It's hot in the summer,' he said. 'Well, do they need the same amount of water if it has been a wet year or a dry year?' I would ask. His response was always 'Well, this is the way we have always done it.' There is a lot of that to overcome with farmers. My husband is college educated, not in agriculture, but he grew up in agriculture. I know he reads and understands a lot of things, and yet there is this tradition. It is like your mom saying we are not having turkey for Thanksgiving dinner. You would say, 'Of course we are!' It is very personal to them to connect that history and say we have always done it this way. I look at it from the science point of view, he looks at it in part from the old historical way of doing things.

Carly's human capital allowed her to be comfortable and competent in the scientific winegrowing methods espoused by the Lodi Rules, while her husband is not convinced of the program's merits.

Formal education in biological science is by no means the exclusive way to acquire the knowledge necessary to farm sustainably, or even well, but in the cases of these two growers did provide these Lodi Rules winegrowers the skills to understand and adopt sustainable viticultural practices and the interest in participating in the program. Other growers, in addition to Roger and Carly made mentioned their education as having a positive impact on their receptivity to the Lodi Rules. However, none were as analytical, or as competent in the ecological and scientific aspects of sustainable viticulture as were Roger and Carly.

Their human capital was expressed in three primary ways. First, they understood ecology, which is the foundational discipline of agroecology. They understood the natural processes, and had learned to view the natural environment as an ecological system while earning their degrees. When the time came for them to implement ecological and systematic winegrowing

practices in their vineyards, their intellectual framework was already in place. As Roger said, “It was a natural leap to take it to the vine.” Second, they understood and had practice in the process of experimentation and rigorous record keeping. The Lodi Rules is itself a rigorous process of record keeping and data interpretation, this aspect of certification was not as much of an intimidation or challenge to them as it was to other growers. Finally, through their education, they learned to value the benefits of farming from an ecological perspective. They are believers that sustainable viticulture is a more environmentally sound agricultural model, and they favor it over the conventional model.

Grower sustainable viticulture human capital and quality bridge to economic viability.

Increased sustainable viticultural human capital is a tool which some growers say aids in producing higher quality winegrapes. As Jack pointed out, “In general, we know that a more balanced vine will produce higher quality fruit. If you can get in the vineyard, observe your fields, and be able to make those fine tuning practices you can create more balance in your vineyard and improve the quality of your grapes.” Increased fruit quality is desired for various reasons - it is obviously a factor in wine quality. From the perspective of Lodi Rules growers with their ultimate objective of sustaining winegrower legacy, increased fruit quality is linked to economic viability. “If you raise better fruit than your neighbor you have a better chance of getting a better price or getting the contract,” said P.J.

Sustainable viticulture is more than a prescribed list of practices which must be implemented or avoided. It is a way of approaching agricultural decisions making, and requires a systematic understanding of environmental, economic, and social factors. It also requires intensive observation and interpretation. As these findings suggest, growers’ human capital gained from formal education influences growers’ ability to understand sustainable viticulture and their decision to adopt the practices. Additionally, regardless of their motivation to participate in sustainable viticulture certification, growers’ sustainable viticulture human capital increased by participating in the program. This human capital transcends the individual and has potential implications in farm and regional economic viability.

Farm labor well-being and the Lodi Rules. This thesis's focus is on growers - their relationship with sustainable viticulture, livelihoods, and legacy - and does not include farm laborers in the sample. Nevertheless, growers interviewed did produce data relevant to laborers. As mentioned earlier, only two (14%) growers included stewardship of human resources into their definition of sustainable viticulture. This suggests that the focus of grower attention is not on laborers as much as it is on the economic and environmental aspects of the program.

The Lodi Rules standards themselves also reflect this disproportionate attention. Eleven out of the 76 sustainable viticulture farming standards deal with laborer well-being. The rest address environmental aspects of winegrowing. I am not arguing that an equal number of standards ought to be allocated for laborer well-being as is for the environmental well-being. However, considering the history of exploitive labor relations that scar California agriculture, the fact that only two growers included stewardship of human resources in their definitions, and the small proportion of laborer well-being standards in the Lodi Rules, I suggest that future studies investigate how the Lodi Rules is affecting the livelihoods laborers.

One grower in this study provided an encouraging glimpse of how the Lodi Rules may be impacting laborers in Lodi. This is only one case, and generalizations can not be made from it. P.J. expressed that the Lodi Rules has instilled in him a greater concern for the well-being of his employees.

I think of my relationship with employees as more of a team than I used to. I also think about their safety now. Through the sustainable approach of holding multiple safety meetings with your employees... I feel like I care more about their health and safety after giving it a lot of thought. I think I'm looking out for their health and safety better than I would have if I did not go through that process of reflection. At our meetings I really enjoy buying dinners, and keeping everyone working happily. That is part of the Lodi Rules that is rewarding.

These statements suggest that the Lodi Rules has the potential to not only elevate the human capital of vineyard employees in terms of viticultural skills, but also in terms of general well-being as employees.

Understanding the effects of the Lodi Rules on laborers is highly important if a complete understanding of sustainable viticulture's relationship to agricultural livelihoods is to be gained. Future studies in this area would surely be valuable contributions.

Conclusions and Recommendations

In his book entitled *The Conquest of Bread* Richard Walker (2004) delivers a haunting depiction of California's monolithic agricultural system. California out-paces all other U.S. states in terms of agriculture output and is even ranked fourth among nations. The Golden State's farmers produce one third of the food consumed by the nation's eaters. This tremendous plentitude, for all its worth, has come with great environmental and human costs. Walker's final page poses the question: "What can we do to stop the juggernaut that cuts through people and countryside alike while still enjoying the benefits of plentitude from the land? How to halt the conquest and still make enough bread?" (2004: 305).

Lodi, located in the heart of California's agricultural landscape is exemplary of Walker's critique, yet is simultaneously a contradiction. Lodi is home to the most developed programs designed to rectify some of California's agricultural shortcomings. Lodi sheds new light on emerging possibilities. What lesson can be learned from Lodi?

Farm legacy and sustainable agriculture programs. Sustaining the legacy of a farm family, requires sustaining the occupation of farming for the present generation, and for future generations. Accomplishing this requires continuing the productive relationship with the land and other resources which produces a livelihood and an opportunity for the next generation to continue farming.

Sustaining winegrower legacy is the core motivation for growers participating in the Lodi Rules, but through participating they have made progress toward achieving other objectives of sustainable agriculture. I argue that grower pursuit of self-interest (sustaining grower legacy) may be a legitimate pathway to achieving broader objectives of sustainability when they participate in organizationally regulated programs such as the Lodi Rules. The guiding structure of the Lodi Rules facilitates the pursuit of sustaining winegrower legacy through efforts to secure economic viability, while also facilitating the implementation of environmental and social viticultural practices. Knowing this, I suggest that sustainable agriculture programs ought to integrate the notion of sustaining grower legacy into their framework - explicitly. This suggestion builds upon the recommendations posed by other

studies (Brodt *et al* 2006; Warner 2007b) proposing that the explicit link between sustainable agriculture programs and agricultural community well-being may be beneficial.

Currently, the objectives of the Lodi Rules are to increase economic value of certified winegrapes by implementing and marketing sustainable winegrowing practices. The objectives end there, and do not extend to explicitly include sustaining winegrower legacy. By including the objective of sustaining winegrower legacy in the Lodi Rules, a broader set of sustainability standards can be created, and a wider range of grower's core needs in regards to generational successions may be better met.

The Lodi Rules may consider drawing from principals and strategies used by Iowa's Women Land and Legacy (WLL) program (NCRCRD 2007) to identify growers' legacy needs. In the public realm, agriculture is a male-dominated occupation and agricultural support programs such as Extension often cater to men, not women. Consequently, men have greater access to and are better educated on the legal, business, and practical aspects of land ownership. This becomes a problem later in life since women frequently outlive their husbands and eventually find themselves in the position of decision-maker regarding tasks such as rental agreements with land tenants, estate planning, and taxes. In Iowa, 47% of the land is owned by women, making this a particularly important issue. Rather than agricultural support programs dictating what knowledge is disseminated and how it is disseminated, WLL used participatory strategies which identify their desires for their farming system. It provides an opportunity for women to express and achieve their land ownership aspirations, as they see them. Agricultural service agencies are included in this process and as a result have become aware of that women's land ownership visions, are different than those of men, adapting their programs accordingly (Bregendahl 2009: Personal Communication.)

Human capital, and Indirect economic benefits of participation in the Lodi Rules. With the exception of one Lodi winery which offers a \$50 per ton price bonus for Lodi Rules certified fruit, no direct economic benefit to certification exists. For Lodi Rules growers this is a disappointment, and they hope this situation changes in the near future. However, I argue that growers' investment in certification offers indirect economic benefits.

The rigorous process of certification results in increased sustainable viticulture human capital, which growers report as providing them with the intellectual tools to reduce costly vineyard inputs through integrated farming methods, but even more important is the ability to grow higher quality winegrapes. Increased quality has the potential to increase value, and thus, to increased economic stability.

This thesis is not the only study which has proposed this idea. Warner (2007b) compared recent state-wide drops in winegrape prices and noted that while Lodi's prices per ton remain below those of most other regions, Lodi's prices have remained more stable while those of other regions have experienced larger decreases proportionately. Warner suggests there may be a causal relationship between Lodi's robust sustainable viticulture programs and price stability. He suggests that such programs may have increased the market value of Lodi fruit, or increased winery preference for this fruit; thus, has buffered Lodi's winegrape market from cyclical changes in price.

As I have discussed, certified grower's implement sustainable viticulture practices on more than certified fields. From this fact we can gather that quality increases are not restricted to the formal parameters of certification, and that any indirect economic benefits resulting from increases in human capital may be had on a larger scale than certification can predict.

Price bonuses are limited measures of the economic benefits growers may earn through certification. Even if no industry-wide price bonus for sustainably certified winegrapes is ever offered by wineries, certification positively increases human capital, and human capital has broad and long-lasting impacts on the quality and economic value of winegrapes. To satisfy growers' need to identify the economic benefits of certification, more systematic and complex measures of these benefits must be undertaken.

Strengthening Lodi's sustainable viticulture programs with Communities of Practice. Lodi's sustainable viticulture programs are participatory, knowledge-dependant, grower-initiated, and place-specific. Consequently, Lodi is a strong a strong candidate for community development strategies such as communities of practice (CoP) (Wenger, McDermott and Snyder 2002). Lodi's sustainable viticulture programs have achieved recognizable levels of success and continue to gain grower participation, but areas for improvement have been

identified by this thesis. I suggests the implementation of a CoP as a potential avenue for further developing Lodi's sustainable viticulture programs.

What is a CoP? "Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing bases" (Wenger et al. 2002: 2). Informally, such social situations exist in workplaces, sports clubs, music groups, and any type of group of interacting individuals with a common interest. Such affiliations occur naturally, but can be more intentional, productive, and their benefits concentrated when facilitated as a CoP.

Three group characteristics must exist in order for a CoP to function. First, the group must have a shared goal or goals. Second, ongoing interaction among groups members must occur. Ongoing interaction is necessary for the sharing of and creation of knowledge. Third, group members must have a shared practice. CoPs serve as a vehicle for increasing human capital specific to a practice and related set of goals.

CoPs are currently being used in Iowa in several agricultural programs. First, the Leopold Center for Sustainable Agriculture sponsored and coordinated program, the Regional Food Systems Working Groups, employs CoP-like strategies to facilitate regional food system development, knowledge sharing, problem solving, and effective actor collaboration. (Leopold Center for Sustainable Agriculture 2008). CoPs are also being used to facilitate the revitalization of decentralized meat processing facilities In Iowa (Thiboumery 2007).

The CoP model may be able to serve Lodi in several areas of development. Successful adoption of sustainable viticulture requires acquisition of new human capital. The CoPs model of education is a potential means to strengthen Lodi grower's implicit and explicit sustainable viticulture knowledge through strengthening existing and creating new channels of knowledge sharing. Such efforts to increase sustainable viticulture human capital may lead to benefits of winegrower economic viability. Additionally, a CoP is well suited to strengthen a wide range of other winegrower practices including regional branding, winemaking, and tasting room operation. Table 6 depicts the three generic CoP characteristics and Lodi's specific characteristics.

Table 6.

CoP Characteristics	
Generic	Lodi Rules
Shared goals	<ul style="list-style-type: none"> • Economic viability • Recognition • Increased quality • Sustaining winegrower legacy
Ongoing interaction	<ul style="list-style-type: none"> • Currently exists to some degree, formally and informally • Can be facilitated through a CoP
Shared practices	<ul style="list-style-type: none"> • Sustainable winegrowing • Winemaking • Lodi regional branding

Facilitating a CoP in Lodi can, theoretically, strengthen Lodi's position as a sustainable viticulture community through increasing human capital and reinforcing social infrastructure, but certain questions must first be answered. First, is there a need? Lodi's sustainable viticulture programs are currently at a point where new directions for development are needed. Moreover, the emergence of other California sustainable viticulture certification programs presents a new climate of competition which the Lodi Rules must compete in. CoPs may be successful at facilitating grower-informed strategies for success in this new climate. Second, is there potential for an effective CoP in Lodi? This thesis has identified many social qualities of Lodi's sustainable viticulture wine community in line with CoPS, and I argue that there is great potential for successful implementation and benefit from a CoP. Lodi Rules growers already exhibit all three characteristics of CoP organization, possess a shared ethic of knowledge sharing, have established bonding social capital necessary for diffusion of information, and have proven themselves as a community capable of organizing themselves for collective action. Third, CoPs are civic and participatory, but organizational leadership is still required. Who will orchestrate a CoP? The LWC is the logical organization for CoP sponsorship. One potential leadership resource is myself, as CoPs are in within the scope of my proposed dissertation work at UC Davis.

Build capital: Not a barrier to the adoption of sustainable viticulture. With the exception of built capital, all seven community capitals introduced in the literature review have been used

to describe various aspects of Lodi's sustainable viticulture programs. Built capital was never brought up by growers as having played a role in Lodi's sustainable viticulture. Even when I probed for this information, growers had little, if anything to say. I interpret its absence to mean that build capital, while essential, is not a barrier to the adoption of sustainable viticulture. Conventional viticulture equipment, buildings, and infrastructure seem to be transferable to sustainable viticulture, and no major changes to a growers' build capital need be made in order to transition. A second interpretation can be that new built capital is needed, however, accessing it is not a significant challenge. In either case, or a combination of the two, the point remains that build capital does not appear to be a barrier to the transition to sustainable viticulture. Knowing this can be a boon to sustainable viticulture programs, since resources can be channeled to overcome real barriers.

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Appendix I

Interview questions

- How did you first become involved in farming?
- What do you like best about farming winegrapes?
- What do you dislike about farming winegrapes?
- Is a grape still a grape? Was it ever?
- Why did you choose to participate in the Lodi Rules?
- Can you describe your experience with the Lodi Rules?
- How do you define Sustainable agriculture?
- What are the benefits to participating in the Lodi Rules?
- What was the process of transitioning to Lodi Rules certification like for you?
- What are your hopes for the future of your farm?
- What are your hopes for the future of the Lodi winegrape community?
- With what occupation do you identify yourself with?
- Did you and/or your family ever make wine as a hobby?
- Why did you decide to build a winery?
- What is special about the Lodi wine community?
- Do you have any regrets pertaining to your life in farming?

Appendix 2

Follow-up survey questions

1. Please enter your name.
2. What pseudonym would you like used in place of your real name within the text of the thesis? This is for confidentiality reasons.
3. Please enter your age.
4. What generation farmer are you? 1st, 2nd, 3rd, 4th, 5th, 6th, 7th
5. For how many generations has your family farmed in Lodi? 1,2,3,4,5,6,7
6. Please select the highest level of formal education you have received. Junior high school, High school, Bachelors, Masters, Doctorate
7. If you attended high school, did you take agriculture classes? Yes, No
8. If you earned a degree above high school, what was your major/discipline? You may list more than one.
9. You are a winegrower, but do you also commercially produce wine? Yes, No
10. Did you, or do you still, consider yourself an amateur or home wine maker? Yes, No
11. Has your participation in the Lodi Rules helped you become a better winegrower? Yes, No, Undecided