The California Agricultural Direct Marketing Study

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OVERVIEW

The California Agricultural Direct Marketing Survey (CADMS) represents a first step by the California Institute for Rural Studies to build a more solid foundation for understanding the relative importance of direct marketing (DM) for California's farmers, its rural communities, and its food consumers. Prior to addressing the responses provided by 250 California farmers to this telephone survey and companion case study, it is worth situating the issue of DM within the larger context of food system development.

In essence, food production, processing, marketing, and consumption have undergone a steady process of regional specialization in the past two centuries, resulting in a global food system characterized by long-distance transport from the field to the table. Integral to this process has been the industrialization of the production process, resulting in a growing dependence of farmers on advanced technological inputs produced off the farm. These trends, made possible by massive infusion of low-cost fossil fuels, have resulted in a rate of productivity growth that has more than kept pace with global population growth. U.S. consumers have benefited greatly in terms of low cost food: our percentage of income spent on food has declined from 21 percent to 11 percent in the past 62 years.

With its ideal Mediterranean climate and extensive irrigation system, California continues to make significant improvements in productivity in conjunction with a steady shift towards high value fruit, vegetable, and horticultural crops. For example, total sales increased by 60 percent from 1988 to 1997. However, despite this dramatic increase in sales volume, both the number of California farms and net cash returns declined by 11 percent in the same period. While a full explanation of the reasons for this apparent anomaly go beyond the scope of this report, these facts represent the impact of an ongoing cost-price squeeze facing California farmers. In essence, California farmers, like farmers elsewhere, find themselves in a weak position *vis a vis* other food system sectors. On the one hand, they have little choice but to ante up for rising costs of technological inputs such as chemicals and machinery. On the other, they generally cannot pass on those costs to upstream food system sectors such as processors, shippers, and retailers. This combination of rapid productivity growth and food system market relationships goes a long way towards understanding the long-term decline in the real cost of food, shrinking per unit profit margins for farmers, and a steady decline in the number of family farms.

On the consumption side we see a parallel contradiction. Despite the availability of a cornucopia of low cost healthy food—much produced in California—the United States is facing a looming public health crisis due to the over-consumption of high-fat, simple-sugar food. Adult obesity increased by 60 percent in the 1990s, with over 50 percent of adults now overweight. The obesity-related disease of Type II (adult onset) diabetes is growing at a parallel pace among adults as well as adolescents.

The dramatic growth in the direct marketing of farm commodities represents a positive counter-trend to these negative production and consumption trends. Through a variety of DM outlets ranging from roadside stands to Internet-based direct sales, food consumers are able to gain access to very fresh, healthy food at competitive prices. In the

bargain they gain the chance to meet the farmer in person and learn more about how and where their food was grown. Because DM is well-suited to small- and medium-scale family farms, these operations are able to eliminate food system intermediaries who generally capture the majority of the food dollar. The result is higher per unit profit margins, allowing family farms to regain a competitive edge without resorting to the more conventional survival mechanism of scale expansion.

Given this backdrop, the CADMS was specifically designed to address two fundamental questions: First, to what extent does DM improve the viability of existing farm operations (i.e., farms that embraced DM after a period of conventional marketing practices)? Second, to what extent does DM assist farm entry by ethnic minorities and immigrant farmers? With a large and growing number of Asian and Latino immigrants, the second question is particularly appropriate for California. Direct marketing allows farmers to begin farming at volumes that might otherwise be too small for conventional marketing outlets, particularly in combination with the higher per unit profits of direct sales. Given the well-established contribution of family farms to local and regional economies that result from the multiplier effects of their income, the significance of DM goes well beyond our project's focus on farm survival.

Because the phone survey methodology was not conducive to accessing immigrants and ethnic minorities who often lack English language proficiency, the second question posed above was addressed via a case study approach focusing on Laotian (Mien) immigrant strawberry farmers in the Sacramento region. As a result, this report is really two reports joined by a common theme yet distinguished by contrasting methodologies. In the CADMS phone survey drawn from all DM farms registered with the California Department of Food and Agriculture (CDFA), we employ statistical inference to identify key issues and groupings of DM operations. In contrast, we make no general claims in respect to the overall population of immigrant/ethnic direct marketers. But the case study uncovered a fascinating set of processes whereby the Mien have been able to harness the full measure of their cultural values and relationships in a successful effort to build a thriving roadside stand-based strawberry market. In short, the two halves of this report offer the reader the opportunity to compare and contrast the issue of depth versus breadth in respect to generalization.

Key Findings of the CADMS Phone Survey

Recognizing that this overview only addresses the highlights, several key findings emerge from the CADMS phone survey:

1. Farmers' markets were the predominant channel for DM, with 80 percent of the 250 participants employing this method. Fifty-four percent employed this method exclusively.
2. In general, yearly gross sales from these farming operations was relatively low, with 54 percent under $25,000.
3. In terms of the proportion of sales from DM relative to total farm sales of the farm, there was a progressive reduction in the percentage of total

sales via DM as farm size increased. In brief, the smaller farms were more dependent on DM.

4. Sixty-three percent of farmers reported higher per unit profit margins from DM sales relative to conventional marketing channels. The mean net profit difference was 65 percent.
5. Direct marketing was particularly important as a means for small farms to begin operation, e.g., the threshold volume of sales for farmers' market participation is typically lower than for conventional marketing methods.
6. Closely related to the above points, over 78 percent stated that DM was important or very important to their operation. It was particularly important for younger and beginning farmers.
7. In respect to motivations for DM activities, over 42 percent cited a local farmers' market as a catalyst for DM sales. Thirty-eight percent cited the satisfaction of dealing directly with the public.
8. Key constraints on success in DM included lack of affordable labor (33 percent), excessive regulations and/or paperwork (20 percent), and lack of access to operating capital (20 percent).
9. In terms of institutional support, 23 percent sought more marketing/educational programs from government agencies such as the USDA.
10. DM was particularly important as a means for foreign-born respondents to begin farming. Sixty percent stated this as a deciding factor versus less than 40 percent for native born participants.
11. Community supported agriculture (CSA) emerges as a particularly robust form of DM. A majority of CSAs had yearly sales of over $100,000 and 67 percent had organic sales, figures well beyond the general sample. CSA operators were younger on average than their counterparts as well (48 versus 55 years).

In addition to the above findings, a cluster analysis was employed to segregate DM operations into a general typology. Three groups emerged, characterized by clear differences in age, years in farming, and total DM sales. The first group appears to be retirees who have entered into agriculture with DM as a catalyst. They are older operators with relatively few years in agriculture. Their farm size and DM sales is relatively small as well. The second group was nearly the same age but had more years in farming and larger operations. They appear to be established "professionals," and were often motivated to engage in DM as a result of a crisis in profitability. The final group was younger farmers who have been particularly motivated by a philosophical orientation to DM. All but one of the 13 CSA operators interviewed were in this group, for example. A significant proportion were highly successful direct marketers, at least in terms of gross sales: 32 percent had annual sales of over $50,000.

Key Findings of the CADMS Case Study

The concept of embeddedness, i.e., social ties that often underlie and facilitate successful economic activity, is employed as a key construct in our analysis of Mien strawberry production in the Sacramento region. Three Mien farmers participated in intensive interviews, supplemented by interviews with key informants. These farmers are part of a cohort of Mien farmers who are accountable for a steady increase of strawberry sales in Sacramento County in the past decade. Starting with no reported sales in 1993, 2000 sales were reported at just under $3 million. The vast majority of these sales are via roadside stands adjacent to the planted acres.

The apparent success of the Mien in urban fringe agriculture can be traced to the following:

1. Central to success in strawberry production is the ability to mobilize timely labor: extended family and clan ties are employed in a complex web of reciprocal relations characterized by inter-familial exchange of labor and an absence of cash wages.
2. Knowledge of strawberry production practices are shared through an extended social and familial network.
3. Equipment is shared and growers buy chemicals and plastic sheeting collectively in bulk quantities, both of which address their relative lack of access to capital and reduce per unit input costs.
4. Growers are able to informally agree on a price floor for strawberries at the beginning of the marketing season.

Key constraints and conclusions regarding the sustainability of Mien strawberry production include:

1. While strong social ties within the Mien community are key to their success in labor allocation, language and related cultural barriers constrain their knowledge of cutting edge production practices that are available from government sources such as Cooperative Extension. This persists even in the face of an effort by a county extension agent to outreach to this group.
2. Lack of access to cold storage facilities and more extensive marketing channels beyond the roadside stand result in substantial crop losses and revenue. Limited language proficiency and capital limitations underlie these problems.
3. Mien farmers appear to be facing looming agroecological problems. Lack of access to land and capital are constraining crop rotation. They are also minimizing, to the extent possible, their use of expensive chemical fumigants. All of these factors suggest serious pest and soil fertility problems in the future.

4. The ongoing integration of the Mien, and their children in particular, into U.S. culture may result in a breakdown in their capacity to mobilize labor.
5. Intense development pressure in the Sacramento region threatens the Mien growers' access to leased and purchased land.
6. Long-term viability of Mien production will likely depend on the role of organizational intermediaries that can bridge the gap between the Mien and mainstream agricultural, finance, and marketing institutions.

Capstone Comment

Recognizing the caveats that accompany any body of survey-based research, the CADMS provides clear evidence that direct marketing is making a substantial contribution to those farms that practice it and, by extension, the localities of these farms. Equally significant, this study, in conjunction with related research, provides us with a much more differentiated understanding of what kinds of farmers are engaging in direct marketing. Our typology of direct marketers, in conjunction with the compilation of their corresponding issues and concerns, provides a formative basis for follow-on research and interventions. And finally, the CADMS findings suggest that direct marketing is a critical element in an alternative food system whose evolutionary logic is capable of restoring the balance between the health of our farms, our communities, our bodies, and our environment.

PART I

The California Agricultural Direct Marketing Survey

INTRODUCTION

California is the nation's leading agricultural state; its 69,000 farmers sell more than $25 billion in farm products each year, two-thirds more than second-ranked Texas. The state produces nearly two-thirds of all fruits, nuts, and berries in the country, half of all vegetables, and one-fifth of milk and nursery crops. Despite increases in production efficiency and overall success in agricultural markets, the state's small farms are not reaping rewards. Instead, many small producers are going out of business because they cannot compete with large agribusinesses.

California is also the nation's leading urban state, with more than 93 percent of its residents living in urban or suburban settings. As the state's population centers have expanded, encroachment on agricultural lands has increased and is now widely considered a threat to farming. But the proximity of many California farms to large urban centers is a major opportunity as well.[1] With a huge market nearby, these regions contain a multitude of direct-to-consumer farm marketing possibilities.

Growers are increasingly taking advantage of new direct marketing (DM) outlets made available by this alternative local economy, with farmers' markets leading the way. Products sold and gross sales at farmers' markets have increased dramatically in recent decades. Vendor surveys at these markets nationwide have shown seasonal sales of $1,000 to $100,000 or more, with total sales reaching up to $1.1 billion (USDA 1996).

These farms have been directly marketing their products at farm tours, festivals and fairs, on the Internet, through mail order catalogs, to local schools and cooperatives, and through subscriptions in community supported agriculture (CSA) arrangements. By eliminating wholesalers and other middlemen, direct marketing increases the viability of existing farms. Farmers who pursue these markets directly capture a greater share of revenues from food purchases.

The economic and social benefits of this marketing strategy include urban revitalization, regeneration of a sense of community, reduction of economic risk to communities from the loss of farming, and the creation of farm entry opportunities for recent immigrants (Roth 1999). Moreover, benefits of direct marketing apply to producers, consumers, communities, the environment, and our national food system. Producers enjoy higher returns, contributing to long-term farm viability. Because very little capital outlay is required to begin marketing directly, DM is seen as a vehicle for new small farm entry. Consumers have greater confidence in the safety of their food when it comes from local growers, as well. It also gives these farmers the opportunity to test new products and services, explore niche markets, and measure consumer response.

Though consumer preferences are constantly shifting, demand for fresh produce has skyrocketed in recent years. Americans are more concerned than ever before with health and nutrition, a fact reflected by increases in farmers' market patronage and the number of individual markets. Also, annual per capita consumption of fresh fruit has increased by 21 percent and per capita consumption of fresh vegetables has increased by 14 percent

[1] For example, farmers in California's Central Valley are in close proximity to the Bay Area and Los Angeles-San Diego markets, as well as the rapidly growing urban centers of Sacramento, Stockton, Modesto, Fresno, and Bakersfield.

from 1980 to 1994 (Govindasamy, et al. 1998). But the potential market for fresh produce may be much larger, as produce consumption in lower income brackets is less substantial than in middle-class or higher income brackets (USDA 1999). With greater education on health, nutrition, and food preparation, consumption may rise in the demographic groups that typically do not buy fresh produce.

The community also benefits from direct marketing farms. These farms add to the economic diversity, provide for employment both on the farm and at the marketing point, utilize local resources, and enrich tourism in the area. Direct marketing farms provide producers with the means for innovation and specialization, thus increasing the options for all farmers. Direct marketing also lends itself to more truly sustainable production and distribution methods: most direct marketers are small-scale farms; use less chemical inputs, since customers frequently ask for this; and distribute produce locally, cutting down on distribution costs while providing fresher food.

This survey report provides key information on how direct marketing has been creating opportunities for small farmers, while constructing an accurate profile of those who engage in the practice. With funding support from the U.S. Department of Agriculture (USDA), CIRS set out to answer two main questions in conducting its survey: How does direct marketing impact farm entry? How does direct marketing affect long-term farm viability? Along with this primary focus, we also sought answers to the following related questions:

- What accounts for the success of direct marketing?
- How are growers able to capture a market niche that allows them to remain viable?
- Does DM provide opportunities for minority, immigrant, and women farmers that conventional marketing does not?
- What obstacles do direct marketers face, and how can government and agricultural agencies help?

This survey investigated these questions with the intention of providing guidance to create policies and programs that support small farmers and direct marketers. It also sought to encourage additional investigations by establishing the first database concerned with California farms that market directly to consumers.

We begin this part of the report by fleshing out the context of direct marketing, followed by a description of the data and methods we used in the survey. We then provide detailed results from our survey, including an in-depth analysis of the data, before wrapping up Part I with a summary and conclusions.

Direct Marketing's Comeback

Direct marketing of farm products is certainly not a new phenomenon, but the twentieth century saw a near disappearance of such marketing channels after World War II. With time, however, the back-to-the-land movement of the 1970s and the farm crisis of the 1980s produced a generation of farmers seeking diversified and decentralized marketing options and alternatives outside of traditional channels (Roth 1999; Bills 2000). Sales of farm products directly to consumers provided these opportunities, and took the form of roadside stands, farmers' markets, and U-pick operations (Roth 1999).

THE CONTEXT OF DIRECT MARKETING

An Uneven Playing Field

The global expansion of agricultural markets and massive technological improvements have provided opportunities for producers and distributors of agricultural products to market on a national and even international scale. Improved transportation, for example, has given retailers the ability to source supplies nationally, thus enabling them to be less dependent on local supplies from farms at terminal markets. Supermarket chains now coordinate purchases through a central warehouse, and with this centralization and concentration of buying power, have become one of the agricultural industry's "price makers." Producers, on the other hand, have have generally been unable to set prices, and must accept the highest bid offered to them by shippers or processors (Lighthall 2000). Consequently, many small growers face a huge disadvantage because they are unable to meet price, volume, and delivery requirements while remaining profitable. Over the decades, food has been standardized and commodified, within the context of an industrial food system (Tansey and Worsley 1995).[2] All of this has come at the detriment of quality for the consumer and the farmer's share of the food dollar.[3]

Due to the competitive market pressures in the industry, the overall number of California farms has been declining, from 80,401 farms in 1987 to 69,351 in 1997 (see Table 1). Worse, this decline is concentrated in small farm categories, while farms with

Table 1
TOTAL CALIFORNIA FARMS BY FARM SCALE

Yearly Gross Sales	1,997	Percent Increase or Decrease	1,992	Percent Increase or Decrease	1,987
less than $2,500	19,473	-14.2%	22,692	-2.1%	23,187
$2,500 to $4,999	6,516	-9.0%	7,160	-17.3%	8,661
$5,000 to $9,999	6,498	-12.4%	7,417	-12.9%	8,512
$10,000 to $24,999	8,621	-7.5%	9,324	-15.5%	11,028
$25,000 to $49,999	6,747	-2.2%	6,899	-12.3%	7,863
$50,000 to $99,999	6,544	2.9%	6,360	-7.8%	6,895
$100,000 to $499,999	11,823	6.1%	11,143	-2.5%	11,430
$500,000 or more	3,129	2.2%	3,063	8.4%	2,825
Total/Average	69,351	-4.3%	74,058	-7.7%	80,401

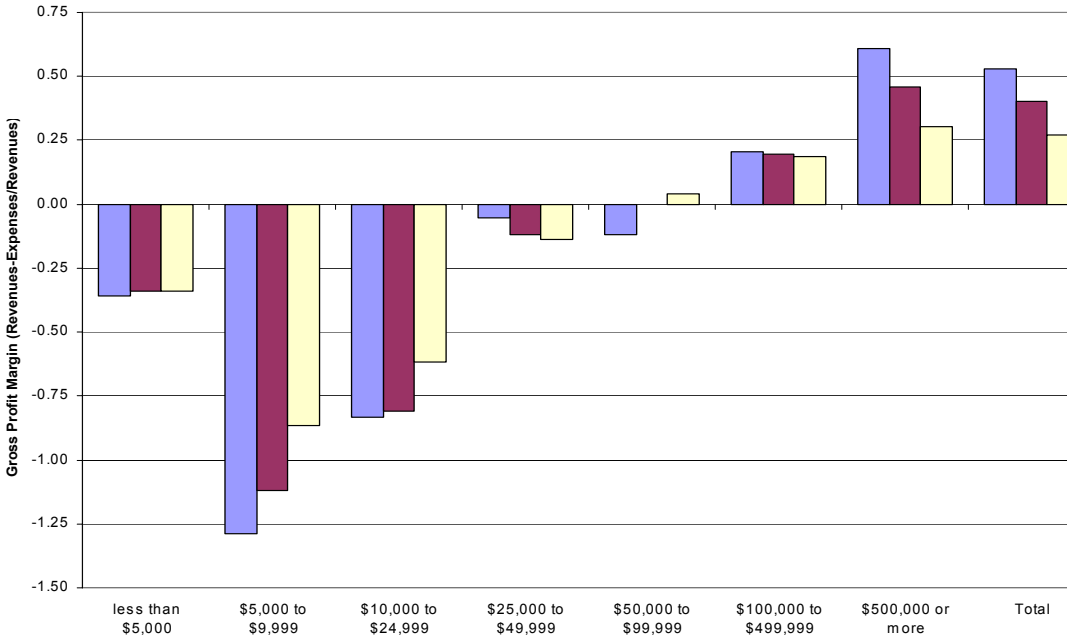
Source: *Census of Agriculture* , U.S. Bureau of the Census, 1997.

[2] The symbolic meaning of foods, within a complex sociocultural milieu, has replaced its use value as sustenance. Moreover, foods have also become cultural icons with modern advertising and branding, with consumer associations linking people and objects, in terms of status (Bourdieu 1993), affect transfer (Cialdini 1988), or internalization (Kelman 1958).

[3] Research has shown that recent corporate profits have come the expense of quality and customer satisfaction (Fornell 2000).

Figure 1

Overall Gross Profit Margin by Gross Revenue Category



gross sales of $100,000 and more are increasing in number. Gross profit margin also tells a troubling story of the small farm. Producers with under $50,000 in gross sales are generally taking losses every year, while large and very large farms are more profitable than ever (see Figure 1).

Scale obviously affects the entire strategy for small farmers. These growers have great difficulty in maintaining a sustainable competitive advantage from their operations. Why? Small farmers using traditional channels cannot easily capture economic rents effectively, as their resource base (assets and skills) is rarely neither inimitable nor inappropriable.[4] Unless small producers employ a radically different production technology, rivals with superior resources (*e.g.*, plant or intangible assets[5]) or other capacities can easily undermine any cost efficiencies.

[4] This assertion is based upon a resource-based view of the firm, in which the key to success is seen as the creation of completely unique assets or resources that are difficult or impossible for competitors to imitate. For direct market farmers, the concepts of inimitability and inappropriability are crucial, since local market bases are limited in scope. Carving out a particular market niche based on local needs and preferences is what makes small direct marketers so successful, as opposed to attempting to compete in conventional markets where they are easily outdone by agribusiness operations on a resource level. See Wernerfelt (1984).

[5] This encompasses a farm's entire resource base, including land, equipment, reputation, good will, etc.

An Alternative Paradigm

Direct marketing (DM) allows the farmer to capture a higher proportion of the food dollar. Instead of competing directly with large agribusiness firms, local growers are able to carve out a local market niche and thereby increase their financial viability. DM allows growers to redefine the entire marketing mix of product, price, placement (channel of distribution), and promotion. Within the context of DM, the producer has the benefit of dramatically increased product quality, prices that are competitive with chain supermarkets, a distribution strategy that short-circuits the channel intermediaries and operates at a much smaller scale, and promotion that focuses on low to negligible costs.[6]

This alternative scheme can be characterized in terms of consumers and producers acting less as atomized units of consumption and production, respectively, and more as part of an "embedded" social network (Granovetter 1985; Hinrichs 2000). Economic activities within such an embedded context rely upon multiplex[7] social relations that govern transactions and resource flows. DM farms' efficiency "losses" due to scale are countered by advantages from establishing relationships with consumers, suppliers, lateral farmers, cooperative extension agencies, DM groups, and associations.[8]

What DM offers is an avenue for agricultural entrepreneurship, in an arena that typically has high entry barriers. DM production tends to be smaller scale with diverse cropping. Farmers engaging in DM need to be flexible, timing their production schedule with their distribution strategy. There is also an emphasis on fostering social linkages with others that shape economic activity within the DM paradigm. Finally, truly sustainable agriculture is better suited to DM, as the interaction of small-scale production and collaboration through social relations (farmer-to-consumer relations, farmer-to-laborer relations, and farmer-to-farmer relations) are well suited to internalizing social costs due to face-to-face interactions. In sum, DM offers an avenue for financial viability in the midst of a concentration of profits in the hands of large agribusiness.

California Leads

According to the Census of Agriculture, California farmers reported over $73 million in direct farm sales for 1997. This represents 14.5 percent of the U.S. total of DM sales and exceeds second-ranked Pennsylvania by more than $7 million (see Table 2). The number of farms engaged in DM is also on the rise, according to Census of Agriculture

[6] In terms of produce, quality is conceptualized by freshness and taste, as opposed to physical appearance, which may be compromised in DM settings. Promotion occurs on a grassroots or "guerilla" basis, but this does not preclude institutional leveraging, where local or statewide campaigns are deployed using mass media.

[7] Multiplex ties means that there are multiple forms of linkages (*e.g.*, transactional, social, political, cultural, *etc.*) between social entities.

[8] The negative consequences of the conventional marketing and distribution system—including environmental degradation, food safety issues, tasteless produce engineered and picked for long distribution routes, factory-raised and processed meat, and health risks associated with exposure to chemicals—may be pushing consumers to re-establish their bond with local farmers. The "buy local" movement has even influenced some supermarkets to purchase produce from local, small producers, in order to capitalize on consumer demand for fresh, locally produced food.

data. Almost 6,000 California farms reported direct sales in 1997, up 13 percent from 5,229 farms in 1992. Nationwide, DM farms are increasing as well, up 8 percent from 1992 to a total of over 93,000 farms reporting direct sales in 1997.

Seven of the ten leading U.S. counties in direct farm sales are located in California, with San Diego County being first in the nation at $6.2 million in 1997 (see Table 3). Both traditional California farm counties and those close to urban centers show significant direct sales. Direct farm sales in California are growing faster than in any other state. California farmers reported an 84 percent increase in total direct sales from 1992 to 1997, while nationwide direct farm sales increased 24 percent (in constant 1992 dollars).[9]

Table 2

FIVE LEADING U.S. STATES IN DIRECT FARM SALES

State	Direct Farm Sales	Percent of Total
California	$73,179,000	13.3%
Pennsylvania	$48,745,000	8.8%
New York	$40,088,000	7.3%
Michigan	$28,720,000	5.2%
Ohio	$28,221,000	5.1%
TOTAL	$218,953,000	39.7%
, ALL STATES	$550,947,000	100%

Source: *USDA Census of Agriculture* , Bureau of the Census, 1997.

Table 3

LEADING U.S. COUNTIES IN DIRECT FARM SALES

County	Direct Farm Sales
San Diego, CA	$6,205,000
San Joaquin, CA	$5,868,000
Lancaster, PA	$5,589,000
Worcester, MA	$4,725,000
Burlington, NJ	$4,078,000
Tulare, CA	$4,028,000
Riverside, CA	$3,947,000
Fresno, CA	$3,817,000
Ventura, CA	$3,478,000
Stanislaus, CA	$3,343,000
Total	$45,078,000

Source: *USDA Census of Agriculture* , Bureau of the Census, 1997.

Entry Opportunities

Direct marketing plays a vital role in creating farm entry opportunities in California. Often, access to customers through direct marketing enables new farmers to receive relatively quick payback on their cash outlay. Substantial anecdotal evidence suggests that Mexican, Salvadoran, Laotian (Iu-Mien and Hmong), Cambodian, Chinese, and Vietnamese immigrants are among the most vigorous practitioners of direct marketing, often growing high-value crops such as strawberries or specialty vegetables on small acreage. The Census of Agriculture does not report the ethnic makeup of California's direct market farmers, although we do know that at least 6 percent of all farms in the state

[9] Almost 90 cents of every dollar spent on DM purchases in California were for fruits, nuts, berries, and vegetables in 1997. Of all these commodities produced in California, about 1 percent were sold directly in 1997. However, research is needed on what proportion of total fresh produce sales in California is accounted for by direct sales.

are operated by Hispanics, 5 percent by Asian or Pacific Islanders, and less than 1 percent by African Americans (USDA 1997).

The emergence of numerous farmers' markets in California has been central to growth in direct market farm sales. Starting from a mere handful in the mid-1970s, today there are more than 320 weekly farmer's markets at locations throughout California. The California Department of Food and Agriculture provides review and certification of these organized direct marketing activities through the 58 county agricultural commissioners. Illustrative of the novel effort involved in the creation of this form of marketing outlet is the history of the Stockton's Farmers' Market. Started by the Rural Economic Alternatives Project of the American Friends Service Committee in 1978, the Stockton farmers' market has grown to support an ethnically diverse mix of small-scale San Joaquín Valley farmers.

But farmers' markets are just one way to market farm products directly. While a fair amount of attention has been paid to farmers' markets recently, less well recognized is the continuing importance of roadside stands and the emergence of newer strategies, such as farmers contracting directly with individuals in community supported agriculture arrangements. Although the 1997 Census of Agriculture included a question that asks farmers to identify which channel of direct marketing they engage in—roadside stands, farmers' markets, pick your own, door to door, etc.—it did not ask what portion of direct market sales occurred through each of the various direct marketing avenues.

DATA AND METHODS

Sample Frame

A sample of California farm operators was selected on a regional basis from a stratified universal sample frame of all such farms. This ensured that all production regions in the state were adequately represented, and it offset the possible bias that might otherwise have been introduced due to the effects of differing regional crop patterns and production practices. All California farmers who directly market their crops had an equal opportunity to be selected for an interview.

The sample frame was composed of 4,283 producer names obtained from the California Certified Farmers' Markets Association of the California Department of Food and Agriculture (CDFA). It contained the names of all direct marketing agricultural producers who had received certification by agricultural commissioners in each county within California, including those who sell at farmers' markets, at roadside stands, at their farm sites, or through some other means. Another list of 54 Community Supported Agriculture operations was obtained from the Community Alliance with Family Farmers (CAFF) in Davis, California. This was added to the sample frame, making the total sample frame size 4,337.

After completing the statewide database of direct market farms, we assigned the operators to one of six agricultural regions in the state, using the geographic definitions adopted by the California Department of Food and Agriculture and the Employment Development Department. These regions are the North Coast, Sacramento Valley, San Joaquín Valley, Central Coast, South Coast, and the Desert. Table 4 shows the number

of farms reporting direct sales and the aggregate volume of reported sales by agricultural region in 1997.

The number of farms randomly selected for interviews in each region (identified as "Number Sampled" in Table 4) is approximately proportionate to the aggregate regional direct market farm sales.[10] This procedure ensured that the sample was properly weighted to reflect the level of farm production for the direct markets from each region.

Table 4
CALIFORNIA REGIONAL DIRECT MARKET SALES

Region	Farms	Percent of Total Farms	Total Sales	Number Sampled	Percent of Sampled Farms
San Joaquin Valley	1,604	27.2%	$22,474,000	53	21.2%
Sacramento Valley	1,449	24.6%	$11,122,000	66	26.4%
South Coast	1,181	20.0%	$17,956,000	59	23.6%
North Coast	764	12.9%	$5,177,000	40	16.0%
Desert	459	7.8%	$6,267,000	11	4.4%
Central Coast	444	7.5%	$10,273,000	21	8.4%
Total	5,901	100%	$73,269,000	250	100%

Source: *USDA Census of Agriculture* , Bureau of the Census, 1997; and California Institute for Rural Studies

Using Microsoft Excel, four computerized random selections were taken, bringing the total sampled to 955. Each random selection was checked against the existing list to ensure no producer was selected more than once. Because the sample frame list did not include phone numbers, two sources were utilized for obtaining them: the Internet information directory and the USA.com Powerfinder PhoneDisc (western states). If no listings by name were found, the telephone numbers were sought through reverse directory by address or by business name when that information was available. When neither of these methods proved productive, an additional Pacific Bell information check was made.

Telephone contacts were initially attempted at three time periods: 10:00 AM–12:00 noon; 1:00 PM–3:00 PM; and 5:00 PM-7:00 PM, but better results were made when attempts were made between 5:00 PM and 9:00 PM. Minimums of three attempts were made to contact each producer in the random selections.

A pilot survey was conducted with 10 producers to test the survey instrument. The interviewer called producers, gave the same pre-written introduction to each interviewee, and then proceeded to ask survey questions in as consistent a manner as possible (see Appendix for the CADMS instrument). During the interview, answers were recorded by hand on a hard copy of the survey. If contact was not made, the date, time and reason for non-contact were written on the random sample list next to the grower's name. A data entry template was developed in Microsoft Access, and survey responses were entered into the database following the interview.

[10] We conducted a Chi-square test to assess whether our sample matched the number of farms regionally. The Chi-square is a non-parametric test that looks at the actual observed counts (o) of sampled farms in a region, comparing them to what one would expect (e) given the proportion of DM farms in a given region out of the population of all California DM farms. The formula is: $\chi^2 = \sum_{i=1}^{2} \frac{(o-e)^2}{e}$, following a Chi-square distribution with degrees of freedom (ν) = *i*-1, where for each of the six regions, *o* is the observed count of surveyed farms, *e* is the expected count from the farm proportions in each region, *i* is the number of regions (6), and ν = *i*-1 = 5. The test statistic was $\chi^2(5) = 10.967$ and was not significant at the .05 level, indicating that the sample approximated the population.

Survey Participation

The process for the main survey interviews remained the same as the pilot, though a number of changes were made to the survey instrument following the pilot. Out of the 955 producers that researchers attempted to contact, 250 were actually interviewed (see Table 5). Only 54 declined or refused to be interviewed, and 156 were disqualified. Most of those who were disqualified were no longer marketing directly to the public, and a few were disqualified because they did not speak either English or Spanish. Thus, the participation rate was relatively high, at 82.24 percent. The refusal rate was 5.65 percent, and the response rate was 53.19 percent. The majority (495, or 51.83 percent) could not be contacted despite at least three attempts. Reasons for non-contact included disconnected phone numbers, wrong numbers, busy signals, and no answer.

Table 5
SURVEY PARTICIPATION

Response	Number	Total Number	Percent
Phone number not found	216		
No answer, recording	144		
No answer	61		
Call back later	45		
Busy	19		
Disconnected phone number	5		
Wrong number	2		
Not available	2		
Left message	1		
Attempted but not contacted		495	51.83%
Disqualified		156	33.91%
Declined/Refused		54	17.76%
Interviewed		250	82.24%
Total		955	
Response Rate			68.17%
Refusal rate			5.65%
Sampling rate			22.02%
Sampling fraction			5.76%
N = 4,337			

Note: Most of those who were disqualified were not doing direct marketing any longer, but a few were disqualified because they did not speak either English or Spanish.

SURVEY RESULTS

In California, farms that market their products directly to consumers have lower gross revenues than the average farm in the state. Under 3 percent of direct market farms report direct and other sales of $1 million or more, while 6.4 percent of all farms in California report sales in that range. Three of every four direct market farms could be considered "very small," with reported sales less than $49,999 (see Table 6).

Table 6
ALL CALIFORNIA FARMS, BY SALES GROUP

Sales Group	Percent of Farms that Direct Market	Percent of All Market Farms
$1 million or more	2.9	6.4
$500,000-$999,999	2.0	4.2
$250,000-$499,999	3.3	5.7
$100,000-$249,999	7.5	10.2
$50,000-$99,999	7.7	8.8
$49,999 or less	76.6	64.7
TOTAL	100	100

Source: *USDA Census of Agriculture* , Bureau of the Census, 1997.

A large share of direct market farms in California are also small in terms of acreage (see Table 7). Nearly 77 percent of direct market farms are 49 acres or less, as compared with 60 percent of all farms in the state. Likewise, just 2.3 percent of direct market farms are 1,000 acres or more, while 6.9 percent of all farms are of that size. In addition, a higher proportion of farms that direct market are owned by an individual or family (86.5

percent), as compared with all farms in the state (76.6 percent). This suggests that direct marketing is important to the viability of many small-scale, family-owned farming operations in the state.

A key area of concern is that average direct sales per farm is low: $12,401 per farm in California and just $5,915 in the United States during 1997. This reflects the relatively small size of many direct market farms. It is not known how many of these are farmers supplementing their income with off-farm employment versus those producers who are growing and selling produce as a hobby or to supplement their household income from some other profession. It is also possible that direct marketers do not rely solely on only one marketing channel, and are using several avenues to sell their crops.

Table 7
ALL CALIFORNIA FARMS, BY SIZE GROUP

Size Group (Acres)	Percent of Farms that Direct Market	Percent of All Market Farms
2,000 or more	1.1	3.6
1,000-1,999	1.2	3.3
500-999	1.9	4.8
260-499	2.9	5.8
140-259	4.4	7.3
100-139	3.2	4.3
70-99	3.8	5.1
50-69	4.7	5.0
49 or less	76.8	60.8
TOTAL	100	100

Source: *USDA Census of Agriculture*, Bureau of the Census, 1997.

Participant Profile

Producers who market directly to the public ranged in age from 20 to 86. As with all farm operators, direct marketing producers tend to be older than other professionals. Forty-three percent of those surveyed were age 60 or older, and only 9.7 percent were under 40 (See Table 8). The average age of participants was 57, thus precisely matching the average age of all California farmers as found by the USDA's 1997 Census of Agriculture.[11] Figure 2 compares age data from the Census and the CADMS. Most direct marketers, 54 percent, have been farming for 15 years or less, and only 15 percent have farmed for more than 30 years. Immigrant farmers are a small minority in agriculture, and

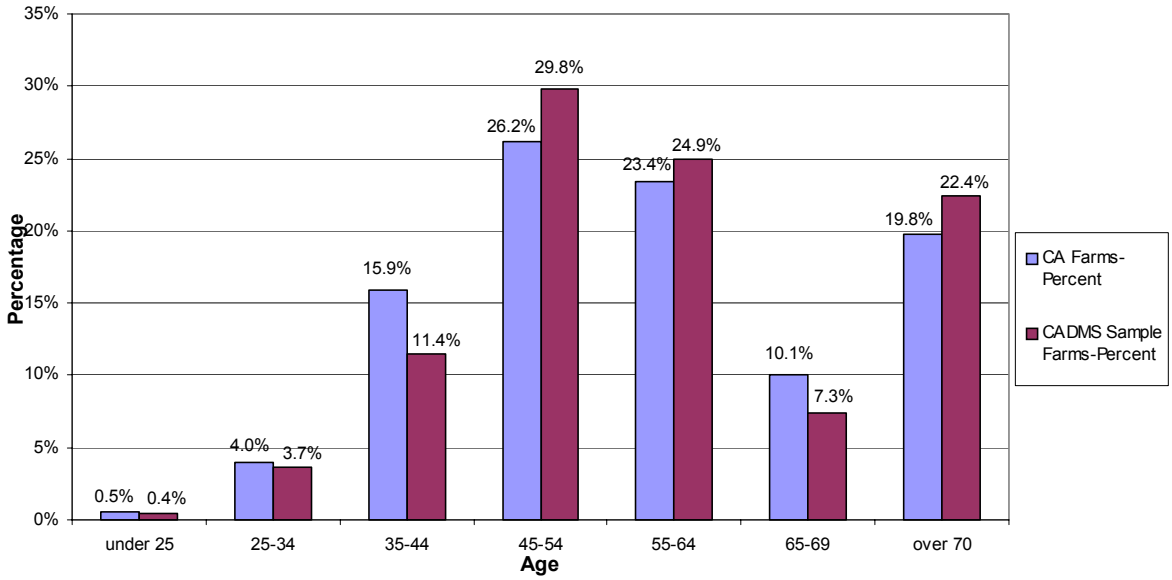
Table 8
AGE OF FARM OPERATOR, ALL CALIFORNIA FARMS

Age Range	All CA Farms	CA Farms-Percent	CADMS Sample Farms	CADMS Sample Farms-Percent
under 25	382	0.5%	1	0.4%
25-34	3,000	4.0%	9	3.7%
35-44	11,754	15.9%	28	11.4%
45-54	19,440	26.2%	73	29.8%
55-64	17,371	23.4%	61	24.9%
65-69	7,510	10.1%	18	7.3%
over 70	14,669	19.8%	55	22.4%
Total	74,126	100%	245	100.00
Mean	57		57	
N = 74,126				

Source: USDA *Census of Agriculture*, Bureau of the Census, 1997.

[11] Another Chi square test was conducted to assess the proportions in each age category across studies. The statistic was not significant at the .05 level (χ^2 (6) = 7.33), indicating that there were no differences in the proportions.

Figure 2
Age of Operator, All California Farms & DM Survey Sample



this was reflected in the direct marketing survey as well. Only 28 participants, or 11 percent, were foreign born. These immigrants have spent from 5 to 54 years in the United States, with the average being 23 years.

Direct marketers' ethnic makeup was predominantly white, non-Hispanic (87 percent). Only 4.4 percent were Hispanic/Latino, 4 percent were Asian, and 4.4 percent were in the "other" category. This heavily white, non-Hispanic percentage, though high, is slightly lower than the Census figures for all farmers in California, which are over 91 percent white, non-Hispanic.

Participants were generally screened to make sure they were the main farmer or at least an equal partner in the farm operation. Even with this initial screening, gender was one category in which direct marketers diverged from the general population of farmers in California. Seventy-five participants were women, or 30 percent, while only 16 percent of all California farmers are women, according to Census data (USDA 1997). Part of this difference could be attributed to tendencies for women and men to separate farm duties into heavy labor (men) and keeping the books (women). Our survey did not specifically ask about gender roles on the farm, so this cannot be inferred.

The largest number of those surveyed were farming and living in the Sacramento Valley region—66 participants, or 26.4 percent. The South Coast region was the second most frequently represented region at 59 participants, or 23.6 percent. San Joaquín Valley followed with 53 participants, or 21.2 percent. The North Coast, Central Coast, and Desert regions were also represented in the sample.

Farm Characteristics

The vast majority of CADMS direct marketers (80 percent) are selling their products at farmers' markets (see Table 9). Roadside stands and on-farm/word-of-mouth sales are

also somewhat popular, with 45 respondents participating in each of these direct marketing strategies (18 percent each). Community supported agriculture (13, or 5.2 percent), internet/mail order sales (14, or 5.6 percent), and U-pick operations (10, or 4 percent) are frequently used. Thirty-four growers, or 13.6 percent, are utilizing some other form of direct marketing, including sales to cooperatives, schools, farm tours, festivals, and street fairs.

Farmers' markets are used most often because they seem to offer the best opportunities for direct marketers. These markets enjoy maximum consumer patronage compared with other options. Not only are these markets able to capture a greater share of consumers' dollars, but direct contact with customers provides valuable input that allows farmers to meet demands and preferences more easily while carving out a market niche.[12] Social atmosphere and camaraderie are also part of the draw for shoppers.

Table 9
DIRECT MARKETING STRATEGIES EMPLOYED

Strategy	Number of Farms Employing Strategy*	Percent of all DM Strategy Occurences
Farmers' market	200	80.0%
Roadside stand	45	18.0%
On-farm/word-of-mouth	45	18.0%
Other	34	13.6%
CSA	13	5.2%
U-pick	10	4.0%
Internet	7	2.8%
Mail order	7	2.8%
Total	361	

N = 250

*Some farms employ multiple strategies

Source: California Institute for Rural Studies

While the majority of growers (66.3 percent) use only one DM channel, many use several simultaneously. The combinations of DM channels employed by farmers are summarized in Table 10. Though the mean number of DM channels employed per grower was greater than one, overall, the modal number of DM channels employed was one. Thus, the majority of respondents were utilizing only one DM channel ($\bar{x}$ = 1.45, σ =.74). Participants were asked what proportion of their total farm sales came from direct marketing. Responses ranged from 1 percent to 100 percent, with a mean ($\bar{x}$) of 67 percent. Forty-two percent responded that 100 percent of total farm sales came from their direct marketing operations. Statewide, registered organic production accounted for less than 1 percent of total crop production value, with a subset of this figure being certified organic crops (Tourte and Klonsky 1998).

Still, many consumers associate direct marketers with organic products. Consumption of organic produce has been on the rise, with national retail sales jumping from $75 million in 1992 to $158 million in 1997, and direct markets are increasingly becoming the source of organic produce for consumers. The number of organic growers in California has increased from 1,273 in 1992 to 1,533 growers in 1997. Also, the number of California acres farmed organically jumped from 40,571 in 1993 to 67,826 in

[12] This is a process that George Day (1994) calls "market-drivenness," where information from outside the organization (*e.g.*, market sensing, fostering customer and channel relationships, and technology monitoring) is scanned for and integrated with internal information to create new knowledge.

Table 10

DIRECT MARKETING CHANNEL COMBINATIONS

DM Channels	Number of Channels	Count	Percent of Farms
FM	1	134	53.82 percent
FM/RS	2	15	6.02 percent
FM/OF	2	13	5.22 percent
RS	1	13	5.22 percent
FM/Oth	2	12	4.82 percent
OF	1	11	4.42 percent
FM/OF/Oth	3	8	3.21 percent
FM/CSA	2	6	2.41 percent
RS/OF/Oth	3	4	1.61 percent
CSA	1	2	0.80 percent
FM/CSA/Oth	3	2	0.80 percent
FM/Mail	2	2	0.80 percent
FM/UP	2	2	0.80 percent
OF/Oth	2	2	0.80 percent
Oth	1	2	0.80 percent
UP	1	2	0.80 percent
CSA/OF	2	1	0.40 percent
FM/RS/CSA	3	1	0.40 percent
FM/RS/OF/Oth	4	1	0.40 percent
FM/RS/Oth	3	1	0.40 percent
FM/UP/Int/OF/Mail/Oth	6	1	0.40 percent
Int	1	1	0.40 percent
OF/Int	2	1	0.40 percent
OF/Oth	2	1	0.40 percent
RS/CSA	2	1	0.40 percent
RS/Int/Mail	3	1	0.40 percent
RS/Int/Oth	3	1	0.40 percent
RS/Mail	2	1	0.40 percent
RS/Oth	2	1	0.40 percent
RS/OF	2	1	0.40 percent
RS/UP	2	1	0.40 percent
RS/UP/Int/OF	4	1	0.40 percent
RS/UP/Mail	3	1	0.40 percent
UP/OF/Oth	3	1	0.40 percent
		249	100.00 percent

FM=Farmers' Market, RS= Roadside Stand, CSA=Community Supported Agriculture, UP=U-Pick, Int=Internet, Mail=Mail Order, OF=On-Farm Sales/Word-of-Mouth, Oth=Other.
N=249

1997 (Klonsky 2000). Direct marketing respondents were asked what percent of their total sales was in organic produce. Almost 80 percent of respondents have no sales in organics, while 18.8 percent sell only organic produce. Thus, while 19 percent of direct market growers sell some organic products, only 2 percent of all California farmers grow organically.

Participants sold a total of 234 different commodities directly to the public. Of these, 145 were sold by 175 conventional growers, and 89 were marketed as organically produced by the 51 organic growers surveyed.

The ratio of commodity variety marketed per grower differed significantly between conventional and organic growers. For conventional farmers, the ratio of cumulative varieties marketed to number of growers was 0.83:1. For organic growers, the ratio was 1.75:1. Thus, organic farmers are generally marketing a greater variety of products than conventional growers.

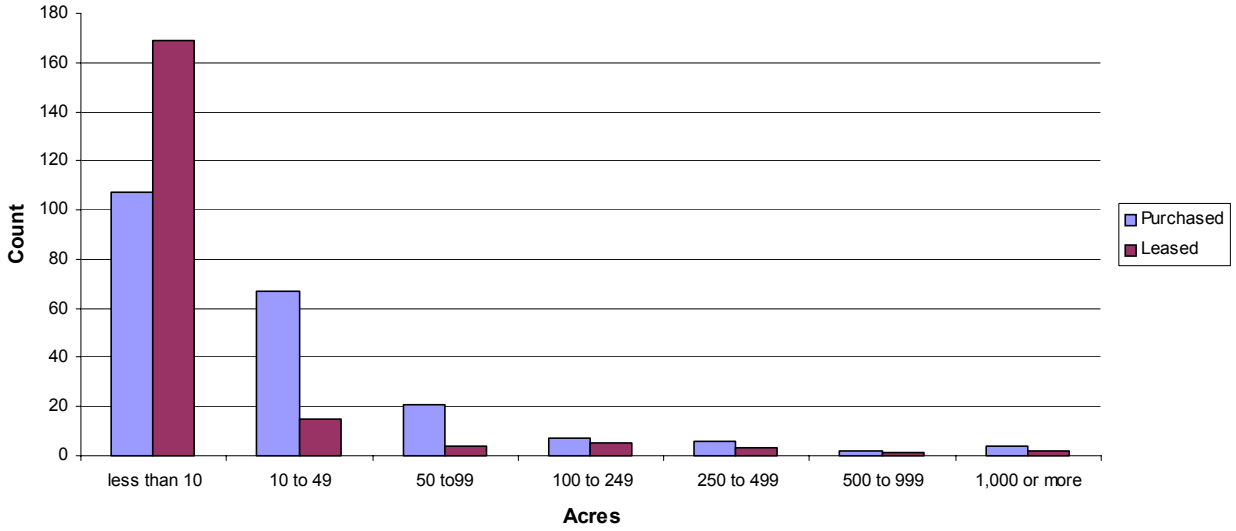
The most common conventional commodities marketed were tomatoes (42 respondents), cut flowers (33 respondents), oranges (25 respondents), apples (24 respondents), and peaches (23 respondents). Organic producers most commonly marketed tomatoes (21 respondents), squash (19 respondents), and apples (12 respondents).

The number of acres planted per grower ranged from one-eighth of an acre to 20,000 acres, with a median of 5 acres. Over 50 percent had less than five acres planted, indicating that direct marketing attracts very small growers. In more detailed descriptions of their operations, many growers described "backyard" or "hobby" growing situations, and others described small "retirement operations." One grower had 20,000 acres planted, but only 9 percent of growers had over 100 acres.

An even more dramatic spread occurred between the number of acres purchased and the number of acres leased by direct marketing farmers (see Figure 3). Seventy-five percent of growers did not lease any land, and 88 percent leased fewer than 10 acres. Coupled with the relatively small size of most direct marketers, these figures suggest that farmers produce on small parcels of purchased land. Indeed, almost 60 percent had purchased 10 acres or less, while only 7 percent had purchased 100 acres or more.

Even within the scope of direct marketing, we suspect that there are scale effects at hand. We have introduced the idea that micro-agriculture (defined here as those farms with five acres or less) may be on a different technological curve. Smaller farms do not enjoy scale economies or market power, but they also are less likely to suffer from inertia effects from fixed investments and are more flexible in terms of production and marketing. We address issues of scale in-depth below.

Figure 3
Acres Purchased and Acres Leased by Direct Marketers



Scale Effects and Micro-agriculture

Yearly gross sales of direct marketers reflected the small size of most of these farming operations: 54 percent made less than $25,000 in sales and over 18 percent made less than $2,500 (see Table 11). We looked at scale in terms of both yearly gross DM farm sales and acres planted.[13] There is a negative relationship between DM sales percentage and annual farm sales—with the negative effect more pronounced in larger farms (over $50,000 in gross sales) (see Figure 4).[14] Significant differences between the means of DM farm percentage were found with farms under 5 acres ($\bar{x}$ = 46.62 percent, σ = 38.07) versus those over 5 acres ($\bar{x}$ = 83.50 percent, σ =

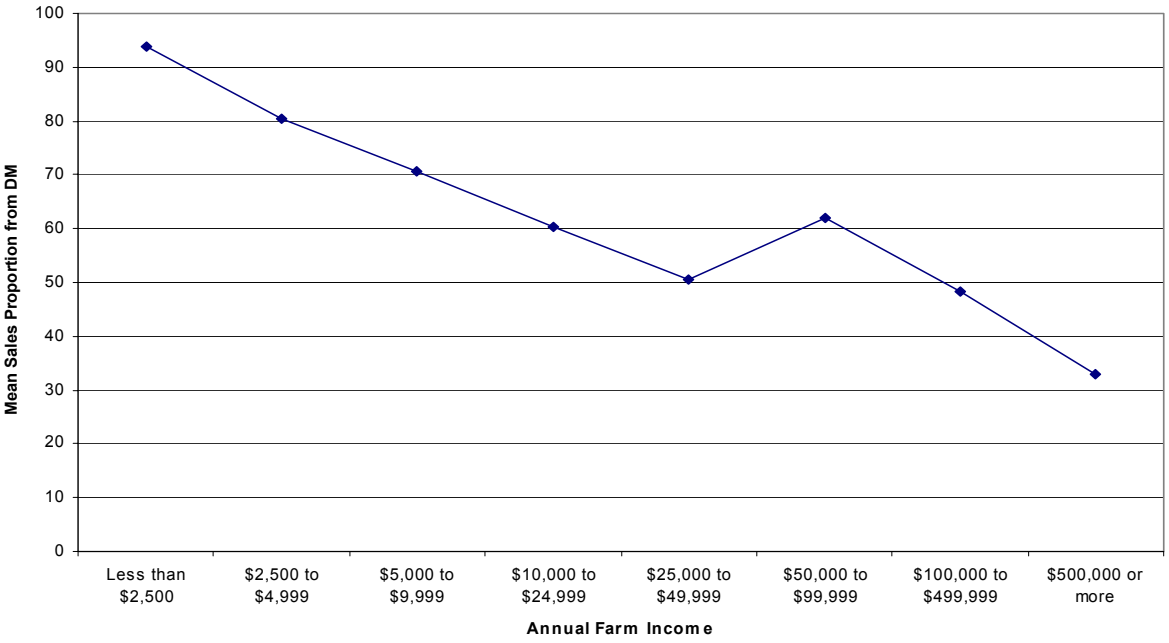
Table 11
YEARLY GROSS SALES

Sales Amount	Number of Respondents	Percent of Total Respondents
less than $2,500	46	18.4%
$2,500 to $4,999	23	9.2%
$5,000 to $9,999	28	11.2%
$10,000 to $24,999	37	14.8%
$25,000 to $49,999	26	10.4%
$50,000 to $99,999	19	7.6%
$100,000 to $499,999	24	9.6%
$500,000 or more	10	4.0%
Refused to answer	37	14.8%
Total	250	100.0%

N = 250
Source: California Institute for Rural Studies

[13] These two variables are highly correlated, using Spearman's correlation coefficient (ρ = .749, p < .000).
[14] Spearman's *rho* also confirms this negative relationship found graphically (ρ = -.472, p < .000).

Figure 4
Sales Proportion from Direct Marketing & Household Income



30.68) were found ($F_{1, 226} = 65.35$, $p < .000$).[15] Clearly, DM utilization is more intensive with smaller farms, indicating that DM is less attractive to larger operations.

Larger farms are able to derive more of the household income from farming, given that there is a strong positive correlation between household income from farming and gross farm sales (Spearman's $\rho = .662$, $p < .000$). Therefore, smaller farm revenues are not the principal source of total household income.[16] A similar pattern was found with acreage. The number of crops under cultivation also differed with scale but the issue is complex. We created a crop diversity index (CDI) variable, norming crops under cultivation (regular, organic, and total) with acres planted:

Crop Diversity Index = number of crops/acres planted

It appears that crop diversity is inversely related to scale, in terms of gross farm sales (see Figure 5), but organic crops appear to be diverse regardless of scale, with the exception of farms between $25,000 to $50,000 in gross sales. These relationships also bear out statistically. We found that DM farms had on average a little over one crop per acre cultivated overall ($\bar{x} = 1.30$, $\sigma = 1.75$, n = 226). Organic production had higher diversity when compared to non-organic production, with the means $\bar{x} = 1.71$, $\sigma = 2.22$, $n = 49$ and $\bar{x} = 1.56$, $\sigma = 1.53$, $n = 181$, respectively. The Spearman's *rho* coefficients

[15] The ANOVA test used had roughly equal cells (small farm $n = 119$, larger farm $n = 109$) and a Levene test showed that the cell variances were not homogeneous at the 95 percent confidence level. We ran a non-parametric Kruskal-Wallis test and found significant mean differences between small and larger farms on DM proportion, so it is unlikely that the heterogeneous variance issue in the ANOVA produced an erroneous solution.

[16] This relationship was also found examining graphical plots.

show a strong negative relationship between overall CDI and total farm revenues (ρ = -.687, p < .000) and between CDI and acreage (ρ = -.916, p < .000). Similar patterns were evident for the organic and non-organic subgroups.

We compared micro-agriculture farms (under five acres) to larger farms, with respect to the perceived obstacles to success (discussed in-depth in a later section). Growers were asked if there was anything preventing them from being even more successful in their direct marketing efforts. Generally speaking, smaller farms report the largest barrier to be a lack of access to land, with 74 percent of the 36 growers who cited this obstacle. Larger farms perceived a lack of marketing outlets (21 percent of 35 growers who cited this obstacle), long distance to markets (56 percent of 36 growers who cited this obstacle), and a lack of time (55 percent of 22 growers who cited this obstacle).

We used graphical plots, in addition to the statistics, to show how scale in DM appears to show a discontinuity around $50,000 in gross sales. Micro-agriculture farms appear to be categorically different than the larger ones in the sample. In terms of production, larger farms have less DM intensity than smaller farms. Additionally, the smaller of the larger revenue farms (*i.e.*, those between $50,000 and $100,000 in gross sales) did have higher DM intensity. The larger DM farms tended to be full-time operations, with more of a proportion of household income coming from the farm and less crop diversity on a per acre basis. Smaller farms face the barrier of not having enough land but these difficulties are a trade-off, as larger farms face problems with marketing, transportation, and production (*i.e.,* not enough capacity to cost-effectively manage larger acreage).

Figure 5
Crop Diversity Index (crops per Acre) & Annual Farm Income

Farm Sales and Income

To find out the extent to which direct marketing, as a strategy, is helping to maintain the viability of such farms, growers were asked if they made a higher profit margin from direct marketing or from conventional marketing of their products. As expected, most participants (63 percent) responded that they were able to capture a higher profit margin by directly marketing their products. The net profit difference between conventionally marketed and directly marketed products ranged from zero to 400 percent (where direct marketers make four times the amount of profit they make by conventionally marketing their products). The mean net profit difference was 65 percent, indicating that direct marketers are generally able to capture much higher profits by cutting out the middlemen.

Market Pressures

Growers were asked if they planned to sell all or most of their products directly to the public when they started farming. Those who planned to sell directly to the public when they started farming were very small in scale compared with those who had not considered direct marketing until later in their farm careers. In general, those who planned to direct market had also spent fewer years in farming. This suggests that direct marketing provides a point of entry for newer farmers. Since their original farming plans included direct marketing, many new micro-agriculture farmers seemed to be aware that the boom in farmers' market patronage presents an opportunity for them. In fact, due to market pressures and competition with agribusiness in the wholesale market, many growers commented that, "Direct marketing is the only way for small farmers to market." A large percentage of small direct marketers believed that they really had no choice but to market directly to consumers if they wanted their farm to survive.

When they started farming, those who planned to sell all or most of their products directly to the public continued to have a higher sales proportion from their direct marketing operation. Those who would not have started farming if they could not sell directly to the public tended to also have a higher sales proportion from their direct marketing operation, emphasizing the level of importance direct marketing had for these growers. It was also clear that the more acres a grower had purchased, the less importance they placed on direct marketing. These trends suggest that direct marketing serves as a vehicle for new farm entry and micro-agriculture viability.

Gender Differences

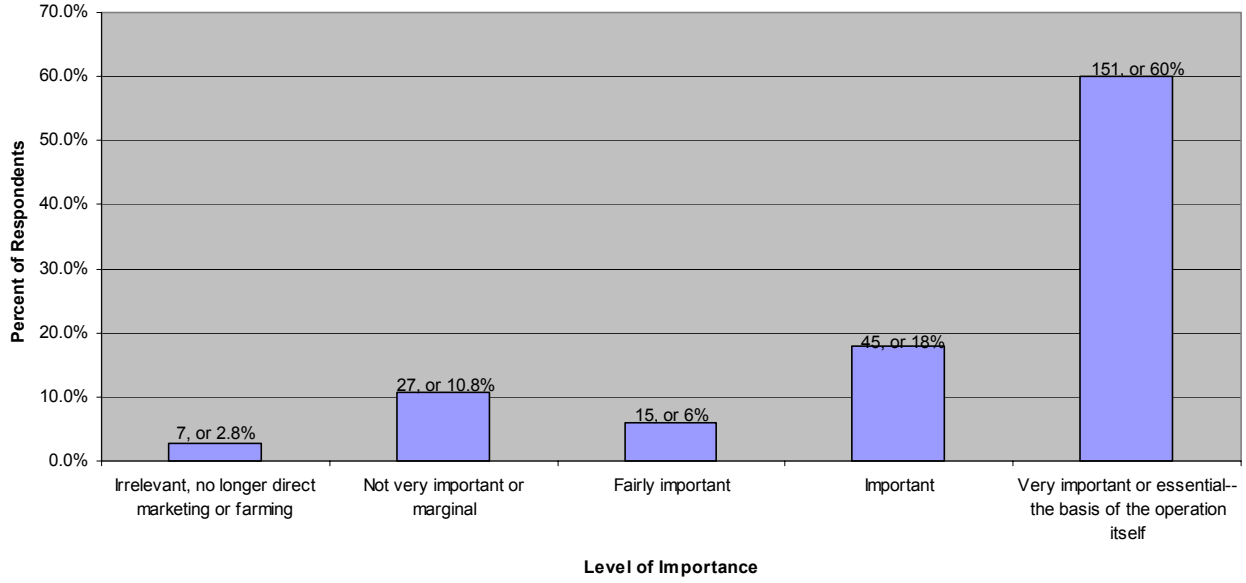
The gender of the operator was significant in several ways. When asked what made them start selling directly to the public, men were more likely to have answered that they wanted the opportunity to capture added-value and higher profit margins. Yet women tended to have significantly higher profit margins from direct marketing than men. Men, however, earned a greater percentage of household income from farming than women. One possibility for these differences was a significant gender difference in types of commodities marketed. However, the CADMS did not find any significant differences between men and women on this count. A recent study has shown that an organization

staffed predominantly by women created a culture emphasizing social relations, rather than pure instrumentalism, and was considered to be a rapidly growing and successful company (Martin, *et al.* 1988). The same may be true for small DM farms managed by women. This effect may go beyond social linkages and be driven by the fact that women have different decision-making styles or that perhaps men may be overconfident in their decisions (Belenky, et al. 1986, Barber and Odean 2001). Bielby and Bielby (1988) also found that in jobs with similar amounts of autonomy, women put more effort into their jobs than do men. Women may engage in different product strategies that yield higher margins but these profits can be competed away with competition unless there is a persistent first-mover advantage (Lieberman and Montgomery 1988), which may stem from differences in decision-making or management. Clearly, these and other findings suggest that more research is needed in the area of gender and direct farm marketing.

Importance of Marketing Goals

Growers were first asked how important direct marketing is to their farm operation. On a scale of one to five, with one being irrelevant and five being very important, over 78 percent responded that direct marketing was important or very important to their farm's success (Figure 6). Over 60 percent said direct marketing was very important. As expected, many of these small operations depend on their direct marketing efforts almost entirely.

Figure 6
Importance of Direct Marketing to the Farm Operation



Interestingly, direct marketing was most important to younger farmers and farmers who have been farming for fewer years (Table 12). In fact, the more years a grower had been in the business, the less important direct marketing was to their farm operation. More detailed analyses of age and experience are discussed below.

Reasons varied for selling directly to the public as opposed to wholesale marketing. Respondents were asked what made them decide to start selling directly to the public. They were prompted with 11 possible answers, of which they could list any number of responses that applied to them. The most commonly cited reason growers sold directly to consumers was that the formation of a new farmers' market in their area created a new opportunity for them (See Table 13). Over 42 percent gave this reason for direct marketing. Thirty-eight percent started direct marketing because of the satisfaction they got from dealing directly with the food consumer. Close to 33 percent said direct marketing fits with their personal philosophy of agriculture and the food system. Twenty-eight percent said they liked having the opportunity to capture added value and higher profit margins from direct marketing, and 28 percent also said it was a way for them to sell their surplus commodities.

Table 12

Importance of Direct Marketing to the Farm Operation & Age

	Count	Mean	Std Deviation
Irrelevant, no longer in direct marketing/farming	7	62.57	17.63
Not very important/marginal	27	57.73	14.16
Fairly important	15	59.73	14.06
Important	45	60.23	14.1
Very important, essential	151	55.74	12.31
Other/not applicable,	5	49.4	13.35

Source: California Institute for Rural Studies, 2001

Most direct marketers (60 percent) answered yes when they were asked if they had planned to sell all or most of their products directly to the public when they started farming. If they had not been able to sell directly to the public when they started, 72 percent said they still would have started farming. Comments from respondents indicated that they enjoyed farming enough to try it despite the marketing strategy available to them, but they had trouble competing with larger growers in the wholesale market. Many indicated that marketing directly to consumers was the only way or the best way for small producers. Thus, small farm viability is significantly boosted with direct marketing as the main marketing strategy.

Table 13		
WHAT MADE YOU DECIDE TO START SELLING DIRECTLY TO THE PUBLIC?		
Reason	**Number of Responses**	**Percent of Total Respondents**
Farmers' market in local area created new opportunity	106	42.4%
Satisfaction that comes from dealing directly with the food consumer	95	38.0%
Fits with my personal philosophy of agriculture and/or the food system	82	32.8%
Other	74	29.6%
Had surplus commodities to sell	70	28.0%
Opportunity to capture added value/higher profit margins	69	27.6%
Desire to cut out the middlemen	47	18.8%
Was a way to get started in farming	45	18.0%
Low profit margins from conventional marketing	41	16.4%
Saw success of neighbors or other farmers	37	14.8%
Only or best way for the small farmer	31	12.4%
Hobby, backyard or retirement grower	29	11.6%
Diversify marketing strategies and/or test new products	23	9.2%
Faced crisis of low profits, had to do something different	16	6.4%
Read about success of direct marketing	10	4.0%
No answer	3	1.2%
TOTAL	778	
N = 250		
Source: California Institute for Rural Studies, 2001		

In fact, the 63.2 percent of respondents who claimed a higher profit margin from direct marketing than from conventional marketing tend to be those who planned to direct market their products when they started farming. Participants with higher profit margins from direct marketing also had a tendency to say they would not have started farming if they could not have sold directly to the public. This appears to reflect an attitudinal effect on ultimate success. Those who set out to market directly to consumers may have more clearly defined and realistic goals and visions of what is possible for the small farmer. They may also recognize the necessity of direct marketing as their main marketing strategy and therefore take more steps to make it a success.

Growers who have been in the business longer generally had not planned to sell directly to consumers when they started farming. This is likely due to the lack of direct marketing outlets in the past, such as farmers' markets, in the last decade. More experienced farmers had also purchased more land and tended to make much higher yearly gross sales. Thus, farming experience was still a strong determinant of farm viability. On the other hand, yearly gross sales decreased as the age of the operator increased. This negative correlation could be explained by backyard, hobby, and retirement growers who may reach a point where production intensity decreases due to a decreased reliance on farm income for livelihood. Nevertheless, care should be taken in interpreting these numbers, as participants were not directly asked how much they relied on their farm income for their livelihood.

Obstacles to Success

When asked what was preventing them from further success, 32.8 percent of growers cited a lack of affordable labor or a labor shortage (See Table 14). Another 7.6 percent indicated that they had "hit a wall" in expansion. And another 9.6 percent said they lacked the time necessary to be more successful. The connection between these three common responses becomes clear when the more detailed comments are considered.

Table 14

IS THERE ANYTHING PREVENTING YOU FROM BEING EVEN MORE SUCCESSFUL IN YOUR DIRECT MARKETING EFFORTS?

Response	Number of Responses	Percent of Total Respondents (N=250)
Lack of affordable labor/labor shortage	82	32.8%
Excessive bureaucracy/regulations/paperwork	50	20.0%
Lack of access to operating capital	49	19.6%
Lack of marketing outlets	38	15.2%
Long distance to markets/transportation costs	38	15.2%
Lack of access to land	35	14.0%
Other	31	12.4%
High cost of registration fees for marketing	25	10.0%
Lack of time	24	9.6%
Poor management/promotion of farmers' markets	21	8.4%
Hit a "wall" in expansion	19	7.6%
Age	18	7.2%
Low population in area/low customer base	13	5.2%
Not interested in expanding	12	4.8%
High cost of or lack of water	11	4.4%
Too much competition	11	4.4%
Lack of information about strategies	9	3.6%
TOTAL	486	

N = 250

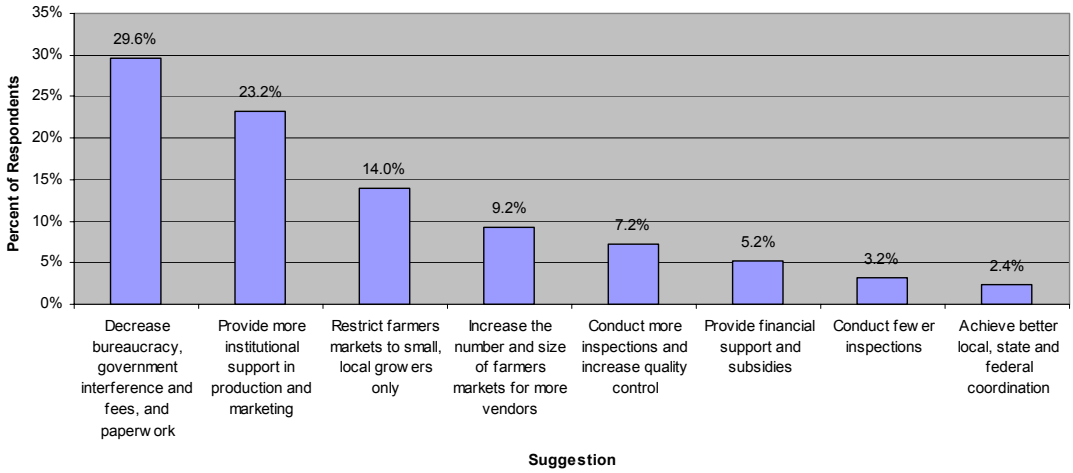
Source: California Institute for Rural Studies

When pressed for further explanation, most of these respondents said they had reached a point where expansion would mean altering the nature of the operation. One farmer said he "can't move the volume that he needs, there's too much employer time needed." Another said "Small growers can't expand. They have to devote their own time to producing and going to markets because they can't afford the extra help." A third noted that "expansion would involve higher costs all around, which would be prohibitive." And a fourth said she would need to hire someone to sell her product, but her profit margin is not high enough to do that. Since small farmers are disadvantaged in the general market, they experience higher costs than large producers. Though many would like to expand, they are prevented from doing so by labor, transportation, water, land, and energy costs. Hence, most expand to the point where they can manage everything themselves, but cannot afford to grow beyond this point.

Grower Recommendations

Based on the hurdles they face, growers communicated many suggestions for ways that local, state, and federal governments, the USDA, the Cooperative Extension Service, university researchers, or farming organizations could help them. The most common recommendation (29.6 percent of respondents) was to decrease the amount of bureaucracy, government interference, paperwork, and fees (See Figure 7). In fact, some respondents believed they would have to quit farming within a year or two due to the burden of government regulations and fees.

Figure 7
Grower Suggestions for Institutional Support



Growers also would like more institutional support in both production and marketing (23.2 percent). While several farmers spoke highly of educational programs sponsored by Cooperative Extension, many said they could benefit most by some marketing education and assistance. One grower said, "Advertising is key, and agencies should do more of this." The type of advertising assistance suggested by farmers varied, from large USDA-led campaigns similar to the Five-a-Day program that encourages more consumption of fresh produce, to requests for local farmers' market managers to place advertisements in local papers. Several requested that more signage be provided by cities.

Another common concern was the makeup of farmers' market vendors. Since this was by far the most common direct marketing strategy employed, many growers made suggestions for market managers. Small farmers are worried about the entrance of large, non-local growers into farmers' markets because they do not feel they can compete with these operations. Fourteen percent recommended restricting farmers' markets to local, small growers only. Many expressed frustration with having to compete with "packing sheds" and "resalers" who sell produce at markets that they did not grow.

One important suggestion frequently mentioned was to increase the number of marketing outlets for vendors (9.2 percent). Several growers said they consistently had trouble getting into farmers' markets because they were full or because they were too few and far between. Other common recommendations were to conduct more certification and health inspections and increase quality control, and to provide financial support and/or subsidies to small growers who market directly to the public.

Motivations and Obstacles to Direct Marketing

As noted above, the DM sales proportion was higher for those with higher profit margins from DM. We wanted to examine which factors, besides farm scale, predicted higher DM sales proportions, since this tends to contribute to the viability of DM as a

strategy. To do this, we used ordinary least squares (OLS) regression to assess how motivations to start DM and perceived obstacles to success influenced the outcome of DM sales proportion.[17] The models were estimated, using the following form (general and matrix algebra):

$$Y = b_0+b_1x_1\ldots b_nx_n+\varepsilon$$
$$Y = \beta X+\varepsilon$$

Where Y is the dependent variable, b_0 is a constant term, b_1x_1 to b_nx_n are the independent variables, and ε is the error term. The set of binary independent variables is:

x_1 = low profit margins
x_2 = opportunity to capture value
x_3 = way to get started farming
x_4 = faced crisis of profits
x_5 = farmer's market opportunity
x_6 = satisfaction
x_7 = saw success of neighbors
x_8 = read about success of DM
x_9 = fits personal philosophy
x_{10} = desire to cut out middleman
x_{11} = had surplus commodities to sell
x_{12} = backyard/hobby/retirement producer
x_{13} = only/best way for small farmers
x_{14} = diversify marketing/test new products
x_{15}= other

The dependent variable is non-normal, introducing estimation problems stemming from non-constant variance or heteroskedasticity.[18] Multicolinearity was assessed by the tolerance statistic in the regression model, using the heuristic of tolerance < .70 indicating colinearity, as well as principal components diagnostics. The variable x_9 (fits personal philosophy) tended to be correlated with other independent variables, which also makes the estimates of the coefficients (b) unreliable. We ran two reduced models, each eliminating one of the two correlated independent variables, x_9 (fits personal philosophy) and x_6 (satisfaction). The two models were very similar (see Tables 15 and 16).

[17] Unlike Spearman correlation coefficients, these models look at relational patterns simultaneously, *i.e.,* the probability of an effect, given other effects. Thus, the psychological motivations are not assessed in isolation but within an associative mental schema.

[18] This makes the estimates of the coefficients (b) unreliable but this can be overcome through weighted least squares (WLS). We ran both OLS and WLS models with similar results, so we chose to report the more parsimonious OLS results, which are more straightforward to interpret.

Table 15

Effect of Motivations (without "satisfaction of directly selling") on DM Sales Intensity

$R^2_{adjusted}$ = **.159; $F_{14, 229}$ = 4.274, p < .000**

X (Independent Variables)	*b*	*t*	*p*
(Constant)		9.0390	0.0000
Question 5a low profit margins	0.0584	0.8573	0.3922
Question 5b opportunity to capture value	-0.0356	-0.5769	0.5646
Question 5c way to get started farming	**0.1862**	**2.9036**	**0.0040**
Question 5d faced crisis of profits	-0.0646	-0.9612	0.3375
Question 5e farmer's market opportunity	0.0681	1.0476	0.2959
Question 5g saw success of neighbors	0.0042	0.0668	0.9468
Question 5h read about success of DM	0.0764	1.2509	0.2122
Question 5i fits personal philosophy	**0.1085**	**1.6735**	**0.0956**
Question 5j desire to cut out middleman	**0.1632**	**2.5583**	**0.0112**
Question 5k had surplus commodities to sell	0.0797	1.2207	0.2235
New cat. 5l Backyard/hobby/retirement producer	**0.1292**	**2.0834**	**0.0383**
New category 5m Only/best way for small farmers	**0.2093**	**3.3209**	**0.0010**
New category 5n Diversify marketing/test new products	**-0.1396**	**-2.2570**	**0.0250**
Question 5o Other	0.0158	0.2537	0.8000

Table 16

Effect of Motivations (without "fits personal philosophy") on DM Sales Intensity

$R^2_{adjusted}$ = **.170; $F_{14, 229}$ = 4.552, p < .000**

X (Independent Variables)	*b*	*t*	*p*
(Constant)		8.6630	0.0000
Question 5a low profit margins	0.0443	0.6514	0.5154
Question 5b opportunity to capture value	-0.0261	-0.4246	0.6715
Question 5c way to get started farming	**0.1815**	**2.8479**	**0.0048**
Question 5d faced crisis of profits	-0.0491	-0.7300	0.4661
Question 5e farmer's market opportunity	0.0505	0.7747	0.4393
Question 5f satisfaction	**0.1588**	**2.4327**	**0.0158**
Question 5g saw success of neighbors	0.0093	0.1504	0.8806
Question 5h read about success of DM	0.0753	1.2420	0.2155
Question 5j desire to cut out middleman	**0.1588**	**2.5320**	**0.0120**
Question 5k had surplus commodities to sell	0.0806	1.2484	0.2132
New category 5l Backyard/hobby/retirement producer	**0.1208**	**1.9561**	**0.0517**
New category 5m Only/best way for small farmers	**0.2151**	**3.4316**	**0.0007**
New category 5n Diversify marketing/test new products	**-0.1345**	**-2.1872**	**0.0297**
Question 5o Other	0.0284	0.4567	0.6483

Both models found positive relationships between DM sales proportion and each of the following motivation categories: 1) a way to get started in farming; 2) a desire to cut out channel intermediaries; 3) an outlet for backyard/hobby enthusiasts; and 4) as the only or best way for small farmers. The strongest and most significant relations were found between DM sales proportion and the categories, "a way to get started farming" and "as the only or best way for small farmers." Not surprisingly, the motivation "diversify marketing/testing new products" was negatively related to DM sales proportion. "Satisfaction with directly interacting with the consumer" and "fitting with personal philosophy" were positively related to DM sales proportion but were marginally significant.

How "perceived obstacles to success" affects DM sales intensity offered fewer insights. A full model using all perceived limitations did not suffer from multicolinearity but only found three significant predictors and explained little variance ($R^2_{adjusted} = .068$, $F_{3,240} = 6.869$, $p < .000$). We ran a reduced (nested) model[19] with only the three significant independent variables, x_1 = lack of operating capital, x_2 = lack of time, and x_3 = other,[20] which had the following estimates, $\beta_1 = .13$, $p = .04$, $\beta_2 = -.17$, $p = .005$, $\beta_3 = -.18$, $p = .003$, respectively. Those citing a lack of operating capital as a limitation were more likely to have greater DM sales proportion, while those citing a lack of time and "other" reasons were likely to have a lower DM sales proportion.

Foreign-born Operators and Direct Marketing

In terms of exploring the topic of agricultural entrepreneurship, we were interested in the roles of human migration, community-based enterprises, and the viability of the small farm. As stated above, there were 28 participants (11 percent) who were foreign-born.[21] The ethnicity of the foreign-born operators (see Table 17) tended to be of European and Asian descent, at 32 percent and 21 percent, respectively.

Table 17

Foreign-Born Operator Ethnicity

Ethnicity of Foreign-Born Operators	Count (n=28)	Percent
White, non-Hispanic	9	32.14
Asian	6	21.43
Other	5	17.86
Pacific Islander	3	10.71
Other Latino, Spanish-Origin, & Hispanic	3	10.71
Hispanic/Latino	2	7.14

[19] A nested model has a subset of the independent variables included in the full model.

[20] Obstacles in this category ranged from excessive bureaucracy, lack of time, hitting a wall in expansion. age, no interest in expansion, high cost/access to water, and too much competition.

[21] Given the relatively few number of operators who are foreign born, inferential comparisons (*t*-tests or ANOVAs) across groups lack the sufficient power to discern differences and there was often a violation of the homogeneity of variance across cells assumption, *i.e.,* heteroskedastic data. Moreover, although percentages are reported, care should be used in their interpretation, given the small cell sizes, *i.e.*, the number in each category. Hence, the cell counts (number in each category) are also reported.

Most of the following results comparing foreign-born and U.S. operators are summarized in Table 18. Due to small sample restrictions and high variation in the results within each category, indicated by the standard deviations (σ), inferential comparisons are inconclusive. Yet, foreign-born operators, when compared to U.S. native-born operators, tended to have a greater share of household income from farming, were farming for fewer years, had a greater share of farm sales derived from direct marketing, and tended to be younger. Foreign-born operators also tended to cultivate and own fewer acres. Half of the 28 operators leased their land, in sharp contrast to the 22 percent of the 210 native-born operators. An examination of the ranges of response finds that no foreign-born operator has planted or purchased over 260 acres. Foreign-born operators have a greater likelihood of engaging in organic farming. They are just as, if not more likely to be profitable from DM, with 78 percent being profitable compared to 76 percent of the native U.S. farmers. A greater percentage (70.4 percent versus 60.3 percent) of foreign-born operators planned on selling directly at the onset of farming, and a slightly higher number (88.9 percent versus 86.1 percent) would have still started farming if DM were not an option, when compared to their U.S. native counterparts.

Table 18

Native US versus Foreign-Born Operators' Farming Characteristics

	Mean Foreign-Born (n=28)	**Std.Dev. (σ)**	**Mean US Native (n=210)**	Std.Dev. (σ)
Household Income from Farming	58.42	43.81	45.9	41.20
Years Farming	13.29	8.45	18.73	14.64
Sales Proportion from DM	74.88	36.37	66.05	38.81
Age	53.68	17.39	57.24	12.44
Acres Planted	20.62	50.73	167.40	1431.47
Acres Purchased	23.09	55.97	66.62	226.54
	Count	**percent**	**Count**	**percent**
Organic Farming	3	10.7	47	24.2
Higher Profit from DM	18	78.3	136	76.4
Plan on Selling to Public w/DM	19	70.4	126	60.3
Still Sell to Public, if no DM	24	88.9	149	86.1

A vast majority (85.7 percent, 21 respondents) noted that direct marketing is important or very important to their farm operation, which is only slightly greater than the 77.6 percent of those who are native born. In terms of revenue, there is a general sense of parity. Forty-eight percent of the foreign-born brought in less than $10,000, compared to 44.7 percent of the U.S. natives. Choices of DM channels were similar for both foreign-born and U.S. natives.

The motivations for starting DM activities were overwhelmingly related to farmers' markets having created a new opportunity. For the 28 foreign-born operators, over 60 percent stated this as a deciding factor. Slightly less than 40 percent of the native U.S. operators cited this as a motivation, which was the highest ranking of that group. Other factors were a sense of satisfaction coming from dealing directly with food consumers (53.6 percent), a way to start farming (28.6 percent), having surplus commodities to sell (28.6 percent), a way to capture added value (25 percent), fitting with personal philosophy (25 percent), and seeing the success of neighboring farms (21.4 percent).[22] The barriers to success, as reported by the operators, were mainly associated with major factor inputs.

The 28 foreign-born operators cited the following barriers to their DM efforts: lack of affordable labor (35.7percent), lack of access to operating capital (32.1percent), and lack of access to land (17.9 percent).[23] Though foreign-born operators tended to state this less often, both foreign-born and U.S. natives suggested that assistance for DM farmers would be best directed towards the reduction of bureaucracy/government interference and paperwork, (10.7 percent and 24.3 percent, respectively) and providing more institutional support for production and marketing, 14.3 percent and 23.8 percent, respectively.

Community Supported Agriculture (CSA)

We examined whether CSAs were a more robust form of DM but the small number of CSAs in the sample limited the analyses. A majority of the CSAs had yearly gross sales over $100,000, with 25 percent over $500,000 and none under $10,000. We compared CSAs to other DM farms of the same size; namely, DM farms with gross sales over $10,000. We conducted ANOVAs to determine statistically significant differences between CSAs and DM farms of similar sizes, along the lines of selected farm and operator characteristics. Regionally, there were more CSAs in the Central Coast and Sacramento Valley than expected[24] and fewer in the North Coast, San Joaquín Valley, South Coast, and Desert. Farms with CSA operations had a greater proportion of sales from DM, greater proportion of sales in organics, greater crop diversity (using the crops per acre index), and fewer acres planted, purchased and leased. Since the biodynamic farming movement (a form of organic agriculture) embraced the CSA model at the beginning of this century (Meller 2000), it is not surprising that farms with CSA operations had 67 percent of sales from organics, compared to 18 percent for the other DM farms. This difference was statistically significant ($F_{1,147} = 16.66$, $p < .000$) but it should be noted that the variance was not heterogeneous. The rest of the differences were not significant, most likely due to a lack of statistical power given the relatively few number of CSAs. Operators' age and experience tended to be less for CSAs, 48 versus 55 and 16 versus 21, respectively, but these differences were not significant. Examination of farm operator gender found that CSA operations were slightly more

[22] The remaining motivations represented less than five operators and are not summarized here.
[23] The remaining barriers represented less than five operators and are not summarized here.
[24] Given the distribution of farms in the sample across regions.

likely to have women operators (33.3 percent) when compared to similar sized farms (26.5 percent).

Farm Typologies Based on Age and Experience Farming

To assess small farm demographics, we used a descriptive multivariate technique—cluster analysis—to assign operators to classes based upon operator age and years farming. Farmers are an aging population. It is suspected that age and experience might hold patterns that can clarify the issue of the aging farmer population. The algorithm specified was *k*-means, the number of *à priori* classes was set to three for ease of analysis and interpretation, and listwise deletion was specified.[25] The three classes or clusters are summarized in Table 19. Each cluster had 74, 48, and 109 operators, representing 32, 21, and 47 percent of the valid 231 cases, respectively.

Table 19

Cluster Analysis Means (Standard Deviations) for Age & Experience Farming

Variable	Cluster 1 (Retirees)	Cluster 2 (Professionals)	Cluster 3 (New Blood)
	n = 74 (32.03percent)	*n* = 48 20.78percent)	*n* = 109 (47.19percent)
Years of Farming	12.81 (7.51)	40.77 (11.75)	13.32 (9.16)
Age of Operator	68.82 (7.58)	64.17 (10.53)	46.39 (7.24)
***N*=231**			

Cluster 1 members were older but have about 13 years of experience, on average. We called this group the Retirees, because they tended to be farming only part time, as a hobby or for extra retirement income, and were relatively new to farming. Retirees tended to have no interest in expansion, as their income from direct marketing their produce was not their main source of income. Cluster 2 members were also older but had over four decades of experience, on average. We called this group the Professionals, because they had been farming for decades and tended to consider farming their main occupation. Their farm operations generally provided their main source of income. The largest cluster, called New Blood, had younger operators who also had about 13 years of experience, on average. This group tended to view farming as their main source of income and as their main occupation, but they were younger and newer to the business. We looked at DM motivations, farm revenues, acres planted, and DM sales proportion to

[25] *K*-means cluster analysis is a technique that places cases (farm operators) into *k* number of groups specified by the researcher based upon a specified set of variables. The variance is partitioned so that the distributions of the groups are significantly different. In a sense, it is a MANOVA in reverse, where the dependent measures are specified in advance and a factor is created (cluster membership) that parses the variation into *k* levels. In order to facilitate interpretation, the variables specified should represent some underlying latent construct. In this instance, we specified three groups ($k = 3$) to be estimated with two variables (age and experience) that we suspected would share covariation. Listwise deletion uses only cases with complete data across all variables specified, *i.e.,* age and experience, so that the estimation does not "go beyond the data".

typify these clusters. Table 20 summarizes farm incomes across clusters. Across the clusters, we examined the top motivations cited within that cluster and conducted a Chi-

Table 20

Farm Income and Clusters

	Older-Less Experienced "Retirees"		Older-Experienced "Professionals"		Younger-Less Experienced "New Bloods"		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
less than $2,500	23	35.38	2	5	16	16.67	41	20.40
$2,500 to $4,999	13	20.00	1	2.5	9	9.38	23	11.44
$5,000 to $9,999	8	12.31	6	15	11	11.46	25	12.44
$10,000 to $24,999	12	18.46	8	20	16	16.67	36	17.91
$25,000 to $49,999	5	7.69	8	20	13	13.54	26	12.93
$50,000 to $99,999	1	1.54	8	20	9	9.38	18	8.96
$100,000 to $499,999	3	4.62	6	15	14	14.58	23	11.44
$500,000 or more	0	0.00	1	2.5	8	8.33	9	4.48
Total	65	100	40	100	96	100	201	100

square analysis of the motivations to determine in what proportions these motivations were represented in each cluster of farmers.[26] These are summarized in Figure 8.

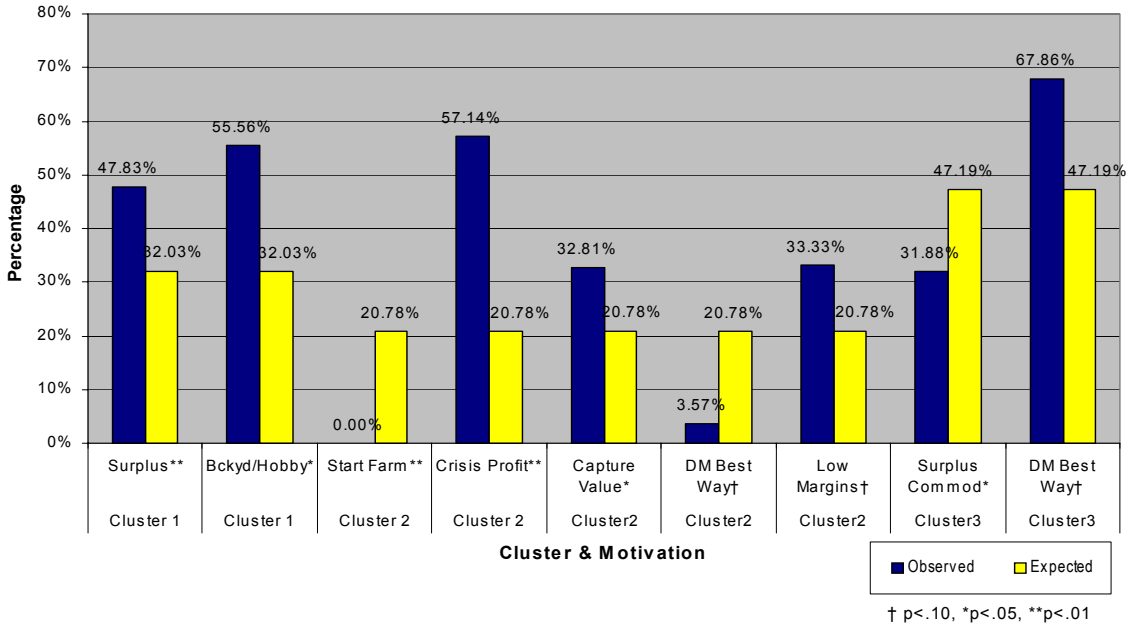
Across all clusters, "farmers' markets creating an opportunity" and "satisfaction with working directly with the consuming public" were top motivations. Retirees also had surplus commodities to sell, had a personal philosophy in line with DM, and tended to be motivated by backyard/hobby farming. Farms in the Retiree group had a high proportion of their revenues from DM ($\bar{x}$ = 76, σ = 34, median = 97) and few acres planted ($\bar{x}$ = 7, σ = 13, median = 2). Over half of these farms bring in less than $5,000 in revenues per annum.

The Professionals were motivated by experiencing a crisis in profits, as well as seeing DM as a way to capture value. They were not motivated by DM as a means of farm entry, as they tended to be farmers already, and they did not see DM as the best way for small farms. The Professional farm operations had a much lower proportion of their revenues from DM ($\bar{x}$ = 43, σ = 37, median = 30) and the most acres planted ($\bar{x}$ = 171, σ = 405, median = 32). These farms tend to bring in more revenues, with over 50 percent earning more than $25,000 per year. They have been in farming for years on larger parcels and saw DM as an opportunity to remain viable.

New Blood members tended to have a wide array of motivations, with more farmers citing more motivations. This cluster saw DM as the best way for small farms and thought that DM coincided with their philosophies. This cluster also has unique

[26] We used Chi-square analyses to test to determine if the 14 motivations in a cluster are distributed proportionally, *i.e.,* 32, 21, and 47 percent, for clusters 1, 2, and 3, respectively. If a motivation is over- or under-represented, the Chi-square statistic is significant.

Figure 8
Differences in Actual versus Expected Motivation Frequencies & Chi-Square Results



† p<.10, *p<.05, **p<.01

predilections for DM channel selection. CSA is almost exclusively subsumed by New Blood operators, with 92.3 percent of the farms with such operations in this cluster. Roadside stands were strongly represented in this cluster, with 59.1 percent of the 44 farms using roadside stands in the cluster. Farms in the New Blood cluster had a much higher proportion of their revenues from DM ($\bar{x}$ = 69, σ = 39, median = 98) and few acres planted ($\bar{x}$ = 49, σ = 136, median = 5). Almost 45 percent of this cluster had $10,000 or less in annual farm revenues. This group seemed more committed to DM as a strategy than the other groups.

Interestingly, no cluster had a relatively greater proportion of farms that said they earned higher profit margins from DM (between 73 and 77 percent of the 193 farms reporting their profitability). Not surprisingly, a large majority of farm operators within the Retirees 1 (81percent) and the New Blood (61 percent) reported that they planned to sell using DM when they started farming, while a large majority of Professionals said they did not (73 percent). For Retirees and New Blood, DM served as a founding-point strategy, while for Professonals, DM is a transition strategy.[27] A majority in all three clusters noted that they would still farm if DM was not an option. In the Retiree and New Blood clusters, the percentages were 72 percent and 70 percent, respectively. In the Professional cluster, the percentage was very high at 90 percent. For those in the Professional cluster, farming is a way of life and DM is a means to an end, in this case farm viability.

[27] Transition, in this sense, refers to the movement from one DM channel to a different channel or multiple channel usage. It often is spurred by profit crises, but is not necessarily tied only to survival purposes.

SUMMARY AND CONCLUSIONS

This report summarizes the data from the California Agricultural Direct Marketing Survey (CADMS) and provides selected analyses that address the main issues of farm entry and farm viability. Specifically, questions about the key success factors, creation of market niches, demographics, and obstacles are addressed.

Farm Entry

Direct marketing clearly fosters farm entry. Those operators who planned to sell using a DM strategy when they started farming tended to have smaller operations, had less experience farming, and had a greater proportion of sales derived from DM. The cluster analyses found that there were two groups of relatively new farmers that used DM as a vehicle for entry, one younger and the other being an older "retirees" cohort. Both intended on using DM to sell their products. A majority of foreign-born operators (over 60 percent) cited the opportunities created by the farmers' market channel as a motivation for engaging in DM activities, compared to the less than 40 percent of the native U.S.-born respondents citing the same. While DM is a founding strategy for new farmers, it is also a transitional strategy for existing ones, which is further discussed below.

Farm Viability

Direct marketing is a means to a viable small farm strategy. Smaller farms tend to use DM to augment other sources of income for the household. Since DM offers greater profit potential, it allows operators to retain a greater share of the food dollar. Moreover, more women experience a higher profit from DM than men. Though gender differences were detected in our analysis, the reasons for these differences remain to be explored.

The major obstacles to success were the limits of small-scale craft production. In order to expand, more labor (or operators' time) and capital would be required, implying that larger scale DM farms are on a different technological production curve. Direct marketing operators also saw that a reduction in bureaucracy would be beneficial towards increasing their success. This usually meant cutting down on certification requirements, paperwork, marketing regulations, and fees. More technical support in terms of production and marketing were also cited as desirable. Production using a DM strategy allows for niche marketing, where contact with consumers provides market information and loyalty.

The linkage of DM to communities is a possible avenue for farmers to create multiplex ties with the consuming public, enabling loyalty and market-sensing. Studies of CSAs and how agriculture can be used to foster a sense of community should be examined, given recent interest in community-based issues. We have found that CSAs tend to farm on fewer acres but also tend to have greater gross sales. Moreover, CSA operators tend to be younger and have fewer years of experience. A better understanding of the social dynamics of CSA production and marketing is necessary to disentangle these issues. This is a unique form of production/marketing that involves consumers directly in the real costs and risks of farming, and often involves consumers volunteering to labor on the farm and/or to market the weekly boxes of produce. The social networks

and relationship dynamics in these arrangements may hold clues to CSAs' increasing successes.

Finally, the cluster analysis found that there was a cohort of older, more experienced farmers that used DM as a transitional strategy. These small farm operations used DM as a way to gain a greater share of the food dollar in a competitive environment where profit margins have been eroded.

In summary, the CADMS offers a cross-sectional snapshot of DM operator responses. It is relatively mute on processes, such as how operators started farming, and did not include respondents that had no English skills. (This issue is addressed in Part II of this report, which is a case study on immigrant strawberry farmers who use DM as a strategy.) Studies of communities of practice, *i.e.,* farmers and those they have relationships with on the production and marketing side, may also shed light on how small farms can more effectively collaborate.

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APPENDIX

Survey ID Code: _____

CIRS Survey for California Direct Marketing Study: Version 5

Date of interview: _____ Name of operator: _____

Phone number: _____ County/address of operation: _____/_____

Introduction: (please provide text)

1. I have a couple of questions but the main question is: How important is direct marketing to your farm operation? In other words, is it worth the extra time and effort? (Their answer should correspond to one of the following.)

   ___ 1. irrelevant, not longer direct marketing or in farming
   ___ 2. not very important/marginal;
   ___ 3. fairly important;
   ___ 4. important;
   ___ 5. very important; essential—the basis of the operation itself.
   ___ Other or not applicable (record in notes section)

2. About what proportion of your total farm sales is from direct marketing? If you also sell through conventional brokers, processors, or wholesalers, do you make a higher net profit from direct market sales of the same products?

   Sales proportion _____ Doesn't know _____

   Higher profit margin from DM? Yes _____ No _____

   Approximate net profit difference _____ Doesn't know _____

3. In percentage terms, could you estimate how much of your total household income comes from your farming operation? _____

4. How long have you been farming _____?

5. What made you decide to start selling directly to the public? (prompt with the following answer categories, then record more specific response from list a. through m)

___ A. Search for higher profits or financial pressure
___ B. A way to get into farming
___ C. New markets opened up
___ D. Learned about the success of others
___ E. Philosophical reasons

___ a. low profit margins from conventional marketing
___ b. opportunity to capture added value/higher profit margins
___ c. was a way to get started in farming
___ d. faced crisis of low profits, had to do something different
___ e. farmers' market in local area created new opportunity
___ f. satisfaction that comes from dealing directly with the food consumer
___ g. saw success of neighbors or other farmers
___ h. read about success of direct marketing
___ i. fits with my personal philosophy of agriculture and/or the food system
___ j. desire to cut out the middleman
___ k. had surplus commodities to sell
___ l. other (record response in notes section)
___ m. no answer

6. When you started farming did you plan to sell all or most of your products directly to the public? (This answer may in fact emerge from the response to 4. If so, skip to 8.)

a. Yes _____ b. No _____

7. If you were not able to sell directly to the public, would you still have started farming?

a. Yes _____ b. No _____

8. Is there anything preventing you from being even more successful in your direct marketing efforts? (prompt with the following answer categories, then record more specific responses from list a. through l.)

___ A. Lack of land, capital, labor, or knowledge
___ B. Lack of markets or distance to markets
___ C. Problems with management or regulation of farmers markets
___ D. Other
___ E. None given

___ a. lack of access to land
___ b. lack of access to operating capital
___ c. lack of marketing outlets
___ d. lack of information about strategies
___ e. poor management/promotion of farmers' markets
___ f. lack of affordable labor/labor shortage
___ g. long distance to markets/transportation costs
___ h. low population in area/low customer base
___ i. high cost of registration fees for marketing
___ j. excessive paperwork involved in DM participation
___ k. other (record answer in notes section)
___ l. none given

9. Can you give us any suggestions for ways that local, state, and federal governments, the USDA, the Cooperative Extension Service, university researchers, or farming organizations might be able to help you do a better job of direct marketing? (Responses will be summarized in notes section and later condensed into categories.)

a. Yes _____ (see notes) b. No _____

10. Yearly gross sales:
___ a. less than $2,500
___ b. $2,500 to $4,999
___ c. $5,000 to $9,999
___ d. $10,000 to $24,999
___ e. $25,000 to $49,999
___ f. $50,000 to $99,999
___ g. $100,000 to $499,999
___ h. $500,000 or more

11. a. Acres planted: _____ b. Acres purchased: _____ c. Acres leased: _____

12. Direct marketing strategies employed (provide percentage sales contribution of each if possible):

___ a. roadside stand
___ b. farmers' market
___ c. CSA
___ d. U-pick
___ e. Internet
___ f. Other (see notes section)

13. Commodities that are currently being sold directly (ranked in order of importance if possible):

___ a. _____ ___ e. _____

___ b. _____ ___ f. _____

___ c. _____ ___ g. _____

___ d. _____

14. Are any of these commodities marketed as organic food? If so, which ones?

___ a. _____ ___ e. _____

___ b. _____ ___ f. _____

___ c. _____ ___ g. _____

___ d. _____

15. If yes to 14., what percentage of your sales was in organic produce? _____

16. Age: _____

17. Ethnic background: a. _____ b. _____ c. _____

18. How long have you lived in the United States? _____

PART II
Immigrant Agricultural Entrepreneurship[1]

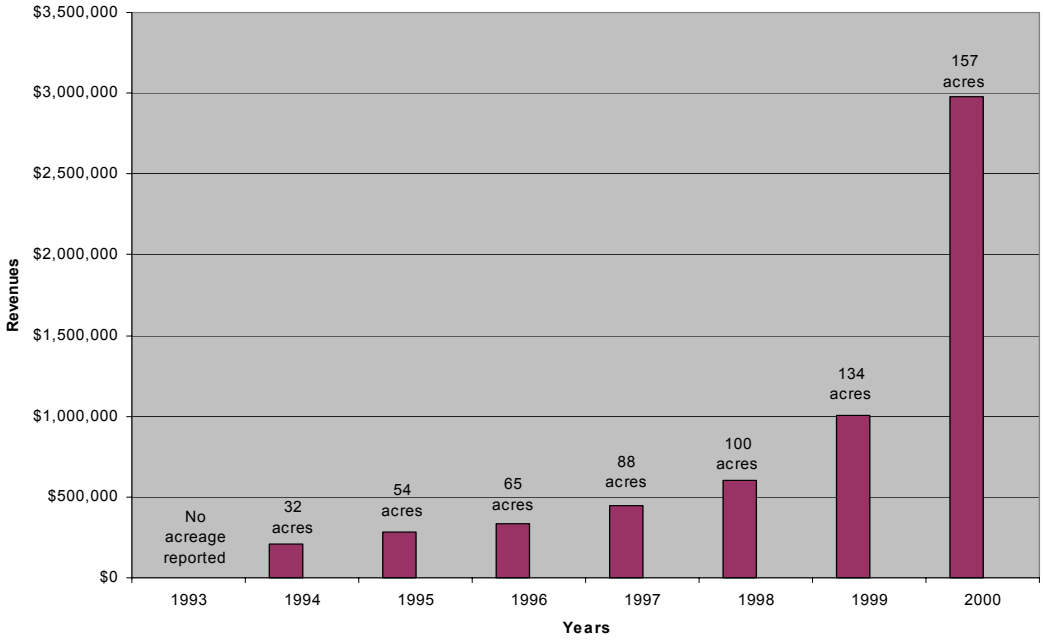
A Case Study of Southeast Asian Strawberry Producers in the Sacramento Region

[1] This case study was conducted and written by Crispin L. Shelley.

INTRODUCTION

This case study focuses on strawberry cultivation and direct marketing by Southeast Asian immigrant farmers (specifically, Mien immigrants from Laos), in the Sacramento and North San Joaquín Valleys. Though strawberry production had been declining in the area for decades, these farmers spurred a boom that began in the late 1990s. Figure 2-1 shows how dramatic the rise in production has been in Sacramento County alone. Fields that had been long abandoned—mainly by Japanese American strawberry growers—were suddenly being furrowed and planted by Mien immigrants with high-cost, high-margin strawberries, which were then directly marketed to the consuming public through roadside stands.

Figure 2-1
SACRAMENTO COUNTY STRAWBERRY PRODUCTION



By examining the underlying factors and processes that account for this remarkable, seemingly inexplicable success story, this study fleshes out important details regarding the socially and culturally mediated ties of the Mien that support the start-up of small-scale production among these immigrant growers. The confluence of culture and agriculture in California strawberries has been addressed in another study, which contrasted Anglo, Japanese, and Mexican farmers (Wells 1996). However, the recent phenomenon of Mien strawberry growers in the Sacramento region has not been previously investigated.

This case study complements and embellishes the information presented in Part I, specifically seeking to disentangle the process by which the Mien became strawberry farmers, the nature of their current production, and their approach to direct marketing. Following this introduction, we discuss the methods used in the study and present

demographic and historic information as well as details regarding strawberry production. We then discuss our findings in six parts, having organized them according to the categories that guided our research: family and clan relationships, knowledge sharing, purchasing economies, labor, timely marketing, and sustainability. We then provide a summary and conclusions section, which includes recommendations for a short-term strategy to assist growers.

METHODS

In order to offer deeper insights on the influence of immigrant culture/status on direct market farming, we sought opportunities to perform a case study research project. A timely article in the *Sacramento Bee* sketched out a story on Sacramento's Laotian strawberry growers, suggesting possibilities for a case study (Schnitt 2001). But before launching into in-depth interviews with growers, we first gathered relevant background information to understand more of the context.

Chuck Ingels, a Sacramento County Cooperative Extension advisor with a history of extension support to Mien strawberry producers, provided information on strawberry production in the region, including methods and a list of strawberry growers. We supplemented the Sacramento list of strawberry growers with those from Yolo County, bringing the pool of possible interviewees to 40. Before beginning the interviews, however, we obtained background information on Mien culture and migration patterns from a Mien community leader, who also provided recommendations for approaching growers.

We developed our interview protocol based upon questions that arose from the quantitative analysis in Part I. As stated earlier, the protocol sought to disentangle the process by which the Mien became strawberry farmers, the nature of their current production, and their approach to direct marketing. A staff member at the Community Alliance with Family Farms (CAFF) who had extensive experience with interviewing farmers reviewed the protocol prior to the study (See Appendix).

Mien growers responded to our initial phone calls with some distrust and hesitancy. We also encountered a language barrier. Out of the 40 possible grower interviewees, only three agreed to an in-person interview at their strawberry field site. Each interview lasted one hour, and two of the three agreed to be tape-recorded.[1] Photographs of the strawberry fields, roadside stands, and signs were also taken at each site.

Though our original plan called for five grower interviews, it became clear that theoretical saturation had occurred after three interviews. In other words, little or no new general information about direct marketing, farm entry, and labor mobilization was being gathered with each subsequent interview, though responses did vary in many ways. The level of cultural "embeddedness" occurring within this population of immigrants is very high (Lewis 1992); that is to say, economic and social decisions are highly culturally mediated. This likely explains why all three growers had the same or similar things to

[1] The interviews generally followed the guidelines set by Spradley, James P. (1979) in *The Ethnographic Interview*. For example, the use of interviewing techniques such as asking different types of questions (descriptive, structural, and contrast), expressing interest, expressing ignorance, etc., were all used in the interview protocol and on an improvisational basis.

say about their direct marketing operations. Embeddedness considers how social relations guide economic activity and counters the logic of the independence of the behaviors of institutions and organizations (Granovetter 1985).[2] Though the other 37 growers on our lists who were unwilling to be interviewed might have provided additional information, two of the three growers we did interview indicated that most of the Mien strawberry producers in the area had very similar operations. This group of producers usually consulted with fellow Mien in their production and/or business decisions. This indicates that our case study likely reflects characteristics of the population of Mien strawberry growers in the area.

All three growers appeared to be in their early 40s and had several children each. Two of the three had five children each who lived in the household, along with grandparents. The first grower interviewed lived in a home on his field site in Rio Linda, an unincorporated outskirt north of Sacramento that is a mix of farmland and encroaching suburbia. He had 2.5 acres, 1.75 of which were planted in strawberries. The second grower lived in Waterford, an agricultural area about 12 miles west of Modesto. He had 5.5 acres planted and lived on site in a home that bordered the field. He also leased a three-acre parcel just outside of Modesto, which was also planted in strawberries. The third grower leased five acres in south Sacramento in an area that was a mix of farmland and encroaching development. This grower brought his uncle to the interview because his uncle had helped him start growing strawberries.

DEMOGRAPHICS AND HISTORY

Strawberry growers in the Sacramento and North San Joaquín Valleys are mainly Laotian, and in the Sacramento region, specifically of Mien ethnic descent. Currently, there are about 35,000 Mien in the United States, and Sacramento has the largest concentration of these immigrants in the country (about 12,000). There is a smaller community of Mien in the Fresno area, which has become a stronger Hmong community. All three grower interviewees indicated they initially lived in southern California and later moved to Fresno for several years before settling in the Sacramento area.

Mien culture has no real written language, and instead places strong emphasis on the oral tradition. It also emphasizes collaboration and consensus-based decision-making, as opposed to a more top-down approach. Since most Mien do not have much education, and since they lack solid English skills, they generally have a hard time finding non-farm employment that pays enough to support their large families. Moreover, given their history of farming in their own country, agriculture offers a lifestyle that is familiar to them.

The Mien people originated in China, and it is believed they were driven to Laos and Thailand for economic and political reasons. As they migrated into the hills of Laos, they began a form of subsistence slash and burn (swidden) farming that continued for

[2] For the most part, studies of embeddedness have focused on "communities of practice," mainly in the context of business firms, but have often ignored how culture mediates economic activity. Saxenian (1994) looked at how a regional network had its own culture of practice that evolved organically. This is arguably quite different from situations where cultural forms, *à priori,* shape the nature and scope of an embedded network, let alone in cross-cultural or intercultural circumstances.

centuries, growing mostly corn, rice, and beans on small, temporary plots of land. During the Vietnam War, many Laotians, including the Mien, assisted the American CIA in preventing a Vietnamese takeover of their country. When the Vietnamese eventually did take over Laos in 1975, the Mien and other groups, such as the Hmong, were forced to flee to Thailand, where they established refugee camps in the Mekong River Delta. In 1978, the first Mien refugee family came to the United States, and many later followed. Sponsorship organizations offered financial help and other services so that refugees could reestablish their lives in the States.

STRAWBERRY PRODUCTION

In 1993, strawberries were not even listed under "Miscellaneous Crops" in the Sacramento County Agricultural Commissioner's Report. By the year 2000, production values had skyrocketed to almost $3 million, with most of this production occurring on plots tended by Mien farmers (Ingels 2001). These Mien strawberry farms are micro-scale operations, with most being well under 10 acres.[3] Strawberry production lends itself to such small-scale enterprises, as managing the crop requires considerable managerial surveillance, multiple production windows, and the use of quality labor for an intensive period during harvest.[4] On the surface, it appears as if prices are rising, possibly making strawberries even more profitable. We examined California fresh strawberry prices over time correcting for inflation (See Figure 2-2) and real prices are in fact flat, around $65.84 per hundred pounds[5].

Cultivation usually begins with discing—facilitating the decomposition of any previous foliage—followed by fumigation with methyl bromide. Rows are then plowed and covered in plastic sheeting, and plants are inserted in holes made uniformly across the sheets, a process that is highly time and weather sensitive. The plants bear for five cycles in a year.[6] Careful attention must be paid to the timing of the harvest, as there is a very small window for proper ripeness and to ensure flowering for the next cycle.[7]

[3] Prior studies of strawberry farming have tended to focus on relatively large farms. Wells (1996) studied strawberry farms in the Central Coast, defining small, medium, and large farms as having 14, 32, and over 100 acres, respectively.

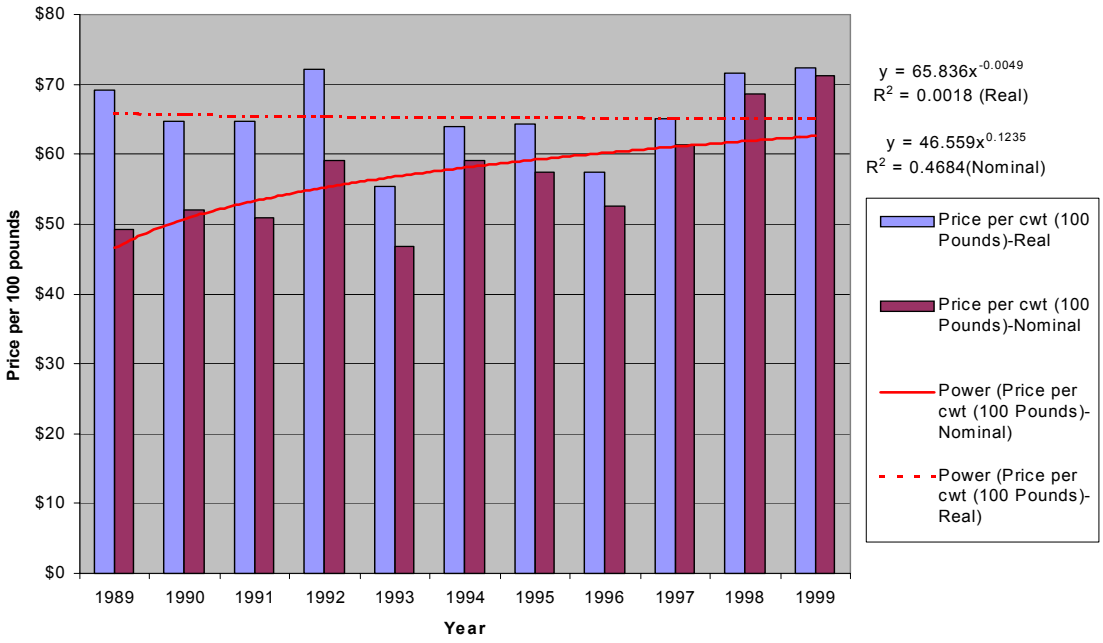
[4] Strawberry plants are susceptible to a wide array of diseases and pests and the fruit are fragile and highly perishable—hence profit potential, which is high, is accompanied by a parallel level of risk. The shelf life of strawberries can be dramatically increased through chilling to 32 degrees (Cooperative Extension 1989).

[5] We fitted an equation to real and nominal prices over time. The real price equation showed that time varied at the rate, x^0, which is, for all intents and purposes, equivalent to the constant of 1. Hence real prices are constant at $65.84.

[6] The production cycle depends upon the variety of strawberry cultivated. Chandler varieties are in the field from August/September through June (April–June harvest) and Seascapes are in the field from November through September (July–September harvest).

[7] Production windows are defined following Lighthall and Roberts (1995) as naturally-determined time periods within which a particular field operation must be completed. Failure to do so results in production losses.

Figure 2-2
Real (2000 Dollars) & Nominal Fresh California Strawberry Prices 1989-1999



Labor is a pivotal input cost, with harvest and non-harvest labor reaching upwards of 50 percent of total production expenses (Cooperative Extension 1989). A conventional belief is that labor needs to be both relatively cheap and intensively managed, as strawberry harvesting requires crop-specific knowledge and high levels of care to ensure the plants are not injured or abused (Wells 1996). Under the social relations framework governing Central Coast strawberry production, labor recruitment, allocation, deployment, supervision, and payment fit the conventional model. Conventional strawberry production has high input costs per acre, high profit margin potential per acre, and high labor requirements (1.5-2 workers per acre) during harvest (Wells 1996). Additionally, labor and management are arranged on a contractual basis. In contrast, as will be argued below, labor management in Mien strawberry production is deeply embedded in cultural relationships to the point that wage relations are eliminated.

FINDINGS

Family and Clan Relationships

The Mien community is very tightly-knit. They discourage outside marriages, and there are often three or four generations living in one household. Most families have at least three children, and five children is very common (Saephan 2001). One of the highest values in Mien culture is honoring the family, and family hierarchy and clan hierarchy are important organizational schemes within the culture's kinship network (Mathews 2000). Individual Mien families relocate to a neighborhood when they learn of

another Mien family living there, especially if the family is a household of a respected elder in their culture (Saephan 2001). In this way, pockets of Mien families recreate whole communities over time, and both Fresno and Sacramento have become central Mien communities on the West Coast of the U.S.

The story of the settlement of Mien in the Sacramento area began, according to the community leader interviewed for this case study, when his grandfather was one of the first Mien to settle in the Sacramento region. Having arrived in Long Beach after leaving Laos, his grandfather received public assistance, but when the programs were cut in his county, he and his family moved to Sacramento where there were better assistance programs.[8] Because of his grandfather's status as an elder and shaman, 40 to 50 other Mien families soon followed. They soon attracted the attention of Mien families in San Francisco, Oregon, and Washington, who all began moving to Sacramento. Since the Mien are largely responsible for the growth in strawberry production in the Sacramento region, the growth of their population and community link directly to their increasing entry into farming.

Knowledge Sharing

The three growers interviewed said that the increasingly saturated market in Fresno, where they began farming as apprentices on the farms of relatives and/or friends, led them to seek new opportunities beyond the region.[9] They came to Sacramento upon learning of the expanding population of Mien there.[10] These farmers brought with them the knowledge and skills that they had acquired in Fresno. Knowledge of strawberry farming was thus transferred experientially through an extended social and familial network.

Though they learned the techniques for raising strawberries in California, all three growers expressed frustrations with the methods they were taught. One grower said the way of farming in the United States is totally different than it was in Laos:

> In Laos you plant anything you want and they just grow up. You don't need water or fertilizer. It's natural. When you put a plant in the ground, it just grows up. All you have to do is weed. In this country, we need to water, add irrigation and a pump and use ditch water and add fertilizer. We have to use a tractor and all kinds of equipment. In Laos, we just cut down the trees and burn everything down and then plant.

[8] The Mien population, and other Southeast Asian refugee groups, have relied heavily on public aid programs in the past due to their refugee status and the U.S. government's involvement in the Vietnam War. The sometimes horrific conditions under which many were finally able to flee Laos and Thailand, their lack of access to an education in their own countries, and their limited English abilities bring enormous obstacles to this immigrant population in finding jobs and providing for their families.

[9] While they were learning how to grow strawberries, interviewees generally worked part time and/or received public assistance. Within a few years, all three moved north to start their own farm. None had any contact with Cooperative Extension prior to starting out on their own.

[10] Other deciding factors included the readily available and high-quality agricultural land closely surrounding the city and a temperate regional climate that was perfect for strawberry production.

This passage underscores the marked transformation of the Mien farmers' agroecological and socioeconomic environment. The contrast between the arguably primitive swidden agriculture employed in Laos and the highly industrialized production of strawberries is quite striking. As argued below, however, the cultural legacy of their prior experience is in fact central to success in this radically new environment.

Knowledge sharing in an experiential/apprenticeship manner was crucial for the Mien, as they have much to learn and written materials in English are often beyond their comprehension. Studies have shown that such sharing is a cornerstone of farmer-to-farmer networks, which form the basis of "alternative knowledge" systems (Hassanein 1999). Unlike mainstream agricultural institutions, these networks are organized from the bottom up, emphasizing the collective knowledge and experience of their members. Because the Mien farmer networks are culturally mediated, they take on an even greater role and importance in the daily activities of these farmers.

The paths by which Mien acquire skills and knowledge from one another adheres to a hierarchical system that begins with certain "core" growers. A hierarchical branching occurs as core growers (usually respected clan elders) pass on their knowledge of farming to other Mien, who, in turn, teach others in the group (Saephan 2001). But this system eventually reaches its limit. When one of the growers interviewed was asked if he could go to fellow strawberry growers in his area for advice, he replied, "No, because we all have the same ideas about farming, because most of the growers in the area learned from me." In cases such as this, the network is considered "over embedded," *i.e.*, network members are overly reliant on each other for advice, and thus receive little or no outside input.

This issue reflects a key shortcoming in the knowledge-sharing system of the Mien. While such sharing is an absolute necessity for farm entry, the accompanying insularity of the group has made it difficult for them to acquire new knowledge about production or marketing. This becomes most apparent when problems arise that cannot be dealt with by the existing knowledge base. Interviewees discussed times when they received "bad advice" from friends and lost whole crops.[11] This is a problem the Mien would like to redress. All three interviewees expressed interest in learning new methods that could make production and marketing easier, but none knew where they could find it. While strong culturally mediated kinship ties provided opportunities for farm entry, it became a liability in cases where farmers needed to be innovative and respond to changing conditions, which would better ensure their long-term viability. Thus, the social relations that guide Mien growers into strawberry production can become over embedded at times.

The problem of over embeddedness can create challenges for outreach efforts aimed at assisting such farmers. It also underscores the need for culturally relevant programs. Several years ago, Sacramento County Cooperative Extension Advisor Chuck Ingels

[11] On the one hand, culturally embedded relationships can help to leverage resources and incubate entrepreneurship. On the other hand, it can lead to myopic decision making, information and knowledge bottlenecks, and vulnerability to exogenous shocks (See Uzzi 1997). This is particularly the case where economic actions are also familial. Situations where those working together are similar are prone to have their judgment clouded, as "the ties that bind may also be the ties that blind" (Powell and Smith-Doerr 1994).

began holding a yearly meeting at the County Agricultural Commissioner's office for Mien strawberry growers. Attendance at these meetings grew from a paltry four or five growers at the first meeting, to over 40 growers in attendance at the most recent meeting. While this growth attests to farmer interest in acquiring new information, not all considered the experience beneficial. One of the interviewees in this study said he had trouble sifting through the written materials in English, another, who had worked with Cooperative Extension, found the advice useless or impractical for his situation. The third interviewee, who apparently did not attend the meeting, said he had never heard of the organization. This disjunction between the Mien and Cooperative Extension may be a function of the over embeddedness of the former's networks, which likely do not mesh well with common agricultural outreach efforts. Again, this problem emphasizes the challenge of carefully tailoring a program to a group's unique cultural needs.

Purchasing Economies

Local growers share not only knowledge, but also equipment, supplies, and labor. Mien growers tend to buy chemicals and plastic sheeting together in bulk to save on input costs. Equipment is almost always shared, as it is extremely expensive to purchase all the equipment necessary for strawberry production. In fact, for those growers who are not able to rely on sharing equipment, the difficulty is finding an inexpensive way to hire an equipment operator for the planting season. One grower complained that hiring someone else to do the work was not only expensive, but hard to obtain on the very specific days strawberry production required the work. Timing presented a problem even for those who could share equipment, as many growers needed to use the equipment at the same time. This was usually worked out by growers all helping on one farm one day in order to get the equipment to the next grower's farm the next day.

One county agricultural commissioner estimated total equipment costs to be around $100,000 for independent strawberry production. Other inputs include fumigation, at a cost of $2,000 to $3,000 per acre. In contrast to more conventional strawberry production (*i.e.*, that of the Central Coast), the Mien farmers did not fumigate every year, resulting in some initial cost savings. Unfortunately, all three growers described considerably lowered yields in years when they could not fumigate. Still, with such high input costs, strawberry production would be a difficult undertaking for the Mien, were it not for their culturally embedded cooperative sharing arrangements.

Labor

Labor costs can make up 50 percent or more of total production costs, placing limits on expansion for most producers (Wells 1996). Strawberry production is labor intensive, but even more, the timing of labor inputs are critical to successful production. A labor force that is available on short notice and for only a short period of time for the harvest and planting seasons is difficult to find. For the Mien, however, use of family members, relatives, and friends as unpaid laborers means cutting input costs in half. Family members who work part-time jobs are available every day, and even those who have full-time, off-site jobs make themselves available during their free time.

All three grower interviewees said that in certain years, they and/or their spouses worked full-time jobs until harvest season, when they took leaves of absence or quit. Work history of the growers and their spouses was very spotty, since the nature of most jobs obtained is transitory, and because their main goal was to be able to work on strawberry production full time without working other jobs. [12]

Timely Marketing

Almost all of the Mien strawberry producers in the Sacramento region market their produce directly to the public via roadside stands. This is not surprising given that the survey results found that direct marketing channels, mainly farmers' markets and roadside stands, were a mode of entry into farming (see Part I). The Mien farmers generally pick only what they think they will sell in a day, since the perishability of strawberries, optimally chilled to 34º F within three hours of harvest, makes storage impossible for the small grower. Location on or near a main highway or road is crucial, and signage must be strategically placed to give drivers the opportunity to stop.[13]

This system is not without its challenges. All three producers complained of the majority of their crop going to waste. [14] One claimed that 80 percent of his crop is wasted every season. Only one grower had the ability to sell damaged or surplus produce to a processor, and this was the grower in the Modesto area. There is currently no processor in the Sacramento area, so marginal or surplus produce is written off as a loss.

Trying to strike a balance between the amount produced and the number of consumers is a constant battle. All three growers expressed the need for more effective marketing strategies and increased access to consumers. Growers have placed advertisements in local papers that resulted in some success. One said he had even tried a radio advertisement but would not do it again because of the expense. Farmers' markets are one likely answer, but this option is difficult for the small grower of a crop with such a short season and a highly perishable product. Securing a booth at a farmers' market also may involve filling out an application or other forms (a difficult hurdle for those who do not speak English), and a commitment that the small grower may not be able to meet with his fluctuating harvest. Additionally, engaging in the farmers' market channel would require that labor be taken out of the field during the harvest in order to get the product to market.

[12] One grower was a janitor, another worked for a drywall company, and the third went to mechanic school but couldn't find work due to limited English skills. In general, the jobs Mien are able to find are as unskilled temporary laborers.

[13] In the areas surrounding Sacramento, where most of the Mien growers are located, development is happening at a rapid pace. This means more traffic is driving by these fields, and encroaching housing developments mean more potential consumers are nearby. These developments have contributed to the boom in Mien strawberry production in the area, even as land prices rise.

[14] Strawberries stored at 85ºF lose quality equivalent to being stored for a week at 32ºF (Cooperative Extension 1989). Ostensibly, roadside stands could enhance the value to consumers by finding cost-effective ways to keep the product cold.

Competition and Pricing

The Sacramento County Agricultural Commissioner along with Extension Adviser Chuck Ingels and several Mien growers agreed that strawberry competition was stiff. One Mien grower worried about the competitive advantage many "underground" growers had. He said some were underpricing their berries and taking less profit because they were receiving public assistance and had a secure income. The unfair competition that results from those who sell "under the table" in such a way was partially alleviated in parts of the Sacramento region when growers, who met after an Extension outreach meeting, agreed to setting common prices. These growers were able to ensure that they obtained a fair price by effectively taking price out of the competitive equation. Of course, other competitive factors remained: location, quality of produce, advertising, etc. Nevertheless, these growers at least did not need to worry about losing customers to the stand down the road because of a pricing mechanism that reflected unfair practices. Instead, they could safely price their berries based on their real input costs, assuring themselves a fair margin of profit.

Sustainability

Mien growers tend to "scrimp" on chemical inputs, due to their costs. Still, methyl bromide was used by all three interviewees, coupled with a lack of crop rotation as they could not afford to keep any land out of production. One grower said the Cooperative Extension agent had spoken to him about crop rotation, but he didn't have enough land to make it work. However, all three expressed a desire to produce more "naturally" or sustainably, and they requested practical information on ways of doing that.

Another issue was soil management practices. All three strawberry farmers used fertilizers but none used any compost. One respondent said he did not have the room. Moreover, due to the production cycle and the small acreage, crop rotation was not deemed feasible. Since strawberries are notoriously hard on soils, there may be diminishing returns in the years to come as the soil structure is depleted.

Another factor mediating against the adoption of more sustainable practices is the fact that most Mien farm their land under a temporary lease arrangement. Though rental prices have remained manageable for most growers, it is not clear how long this will last. Some growers expressed concern that their leased land will be bought by developers, and they will have to start again in a new location. Many are already temporarily leasing the land from developers who are waiting for zoning and building permits before they begin developing the land. In these cases, there is little motivation for building up the soil through expensive initial soil amendments and labor-intensive sustainable practices if the growers will soon be forced to abandon land to developers in a few years.

A critical question here is whether the smaller scale of Mien production, in concert with their alternative method of labor management, reduces the negative environmental impacts of strawberry production. For example, Lighthall and Roberts (1995) found that medium- and small-scale farmers in north central Iowa were more capable of adopting ridge till, a more sustainable form of corn and soybean production that significantly reduced soil erosion and herbicide impacts, than large scale farmers. In this case, the key

to reducing environmental impacts was the adoption of a more complex production system that introduced new, more timely field operations for fertilization and weed control. Medium- and small-scale farmers were inclined to adopt ridge till because their scale of production enabled them to complete these field operations within their corresponding production windows. In contrast, large-scale farmers had concluded that ridge till was too risky at their scale of production, citing the problem of meeting these new production window demands. As in the case of Mien strawberry production, ridge till producers were cutting per acre input costs (herbicide and nitrogen fertilizer) as a result of their superior ability to mobilize family labor on a timely basis.

Social networks and the use of family labor also raise the issue of social sustainability. Though the use of family labor was the strongest factor in carving out a market niche for Mien growers in Sacramento, the work itself is backbreaking, and family members, especially children, do not always want to help out. Two growers complained of back pain during planting and harvest seasons due to repetitive bending and squatting motions. One grower described the way holes are punched in the plastic bed lining so that the strawberry plants can be placed in the ground. This task requires a gas-powered hole burner that is carried by the grower. The operation involves bending over and punching a metal cylinder through the plastic at regular intervals to burn a hole in the plastic lining, all the while carrying a tank of gas on one's back.

Social sustainability may also be in question not only because of the inherent physical toll of strawberry production, but because of the possibility of familial labor exploitation. When children and other younger family members feel pressured into helping in the fields, a wedge may be driven between the generations. Two of the growers talked briefly about the reluctance of their children to work in the field. With the widening generation gap of first and second generation Mien immigrants, the added pressure on children can be a source of familial conflict (Saephan 2001).

SUMMARY AND CONCLUSIONS

This case study explains the process by which immigrant farmers get their start in California agriculture, using a direct marketing strategy based on roadside stands. Mien Strawberry production is particularly illustrative as it offers an interesting intersection of culture, social networks, and agricultural entrepreneurship, in which cultural ties organize economic activity. These ties afford the Mien entry into agriculture, serving as a mechanism of knowledge transfer and diffusion while enabling entrepreneurship among immigrants with no written language tradition or basic English skills. Moreover, there is the use of shared labor that is culturally mediated. Akin to the study of Silicon Valley and Route 128 (suburban Boston) by Saxenian (1992), we find that Laotian farmers use social networks to solve strategic problems and capitalize on their proximity to one another. However, there is a flip side to this coin. The social network also has the capacity to inhibit the incorporation of new knowledge and the diffusion of innovations, where social ties create a form of insular myopia (Powell and Smith-Doerr 1994; Uzzi 1997).

Although we discussed how cultural linkages affect the strawberry production process, marketing encompasses a different set of relations, *i.e.*, those with consumers. Roadside stands provide farmers with limited English skills a way to sell strawberries and also to get a sense of the market through direct contact with their customers. These relationships put a "face" on agriculture, linking the consumer and the producer and tempering purely instrumental exchanges. As pointed out by Hinrichs (2000), agricultural direct marketing involves a combination of face-to-face embedded social relations and economic instrumentality. Though strong social and cultural ties may serve to support direct marketing activity and its associated small-scale agricultural production, they do not displace the essential economic relationships in which this activity is immersed. "Social ties, personal connections, and community good will," writes Hinrichs, "are often appropriately seasoned by self-interest and a clear view of process."

Among the Mien strawberry growers we interviewed, this seemed to be the case. For example, migration patterns and farm entry are both affected by social linkages with clear cultural overtones. Moreover, the dissemination of information, its conversion to knowledge, and how kinship ties affect decision making are all intertwined with culture. It is these linkages and ties that give rise to the unique apprenticeship arrangements, where free labor is provided for relatives' and/or friends' farms. Since labor costs can make up 50 percent or more of total production costs, the apprentices provide a valuable, if not essential, service for growers. In turn, the apprentices receive vital training and experience not otherwise available to them, which helps facilitate the launching of similar directly marketed strawberry ventures. Also important are the Mien's collective purchasing economies, which help to offset the high input costs of strawberry production.

Nevertheless, it is not clear whether the strong kinship and community ties that exist among the Mien can be adequately reproduced over time. While farming provides channels for the hierarchical distribution of knowledge and skill sets to younger generations of Mien, which is important in their culture, fractures in intergenerational relations have begun to appear. It may be that these fractures may eventually lead the Mien to follow the path of the Japanese American strawberry farmers that preceded them.

Regional development is also a dual-edged sword. While it has brought consumer markets in closer proximity to growers' land, it is also likely to lead development interests to usurp the Mien. Local planning and land use will likely play a huge role in the strategic viability of micro-agriculture in the region.

Related to this issue is the problem of environmental sustainability. It is not clear whether the smaller scale of Mien production, in concert with their alternative method of labor management, reduces the negative environmental impacts of strawberry production. Nevertheless, there is an opportunity for the adoption of more sustainable agricultural practices in this community. Growers are open, and sometimes eager, to learn and adopt new sustainable practices. One specifically mentioned the desire to become organically certified, since many of his customers had been asking for organic strawberries. But advice should be practical, have demonstrated success, and be accompanied by strong support along the way. That support may come in the form of financial help, translation and other assistance in filling out forms, or detailed and thorough help in taking advantage of existing resources.

On a more general level, a strategy to assist the Mien should focus on overcoming the barriers that have made it difficult for them to obtain outside knowledge and skills. One consideration is for Cooperative Extension advisors to cultivate a more nuanced understanding of Mien culture and their unique situation in strawberry production. The two interviewees who had heard of Cooperative Extension repeated the complaint that Cooperative Extension gives advice that is "for big corporations" and is based on a model that is "too perfect." Since growers repeated the desire to learn about sustainable and successful production practices, there is a need for Cooperative Extension to reach this population with practical, culturally sophisticated advice that takes into consideration the particular hardships of this community.

The Mien community leader that was interviewed recommended that workshops and conferences be held more frequently and that they be more collaborative in nature. Translators should be provided because most Mien have limited English skills and written materials should be kept to a minimum. As stated previously, Mien culture has no real written language and places strong emphasis on the oral tradition.

One possibility would be to hold meetings at a grower's field site, for the purpose of demonstrations of new practices and opportunities for grower comments and discussion. These meetings ought to be viewed as an opportunity for Cooperative Extension to learn more about this group of growers so that they might better tailor future outreach and assistance efforts to the practical realities and financial limitations of Mien growers.

The Mien community leader also emphasized the importance of "going into the community and building relationships with community leaders that can be used to gain meaningful access to growers, especially growers who are Mien clan leaders." Venturing into the Mien community is a meaningful step in bridging the cultural barrier, as opposed to requesting that growers attend meetings in Agricultural Commissioner's offices. Furthermore, building a relationship with a respected clan leader can provide an "in" to more successfully introducing new ideas. This is crucial, as we saw earlier the ways in which the hierarchy and cultural isolation of Mien culture can preclude the adoption of innovative production and/or marketing practices.

All three growers were desperate to find new marketing outlets. Unfortunately, this is where agricultural agencies offer no support whatsoever. Even the Sacramento County Cooperative Extension advisor admitted his own lack of knowledge and background in marketing, while acknowledging Mien growers' particular need in this area. Since there are no strawberry processors in the Sacramento area, growers need to find alternative ways of dealing with their surplus. One model that ought to be considered is the Hmong strawberry marketing cooperative being formed in the Fresno area (Ingels 2001). Hmong growers have formed a cooperative in order to sell to supermarkets and to local processing plants. The limitation of selling to processors is the low returns growers receive for their produce. However, cooperative marketing arrangements should be further explored, as there is the possibility of marketing to restaurants, schools, farmers' markets, and supermarkets. The need for more marketing support is not unique to Mien growers, as most small farmers and direct marketers complain of the lack of outlets and support.

In summary, this study supported the results of the direct marketing phone survey, while offering additional important insights. The Mien earn 100 percent of their farm income by marketing their produce directly to consumers through roadside stands. They knew of no other way they could sell their crops, and thus the viability of their operations depended entirely on the roadside stands. Direct marketing was also the only known vehicle for farm entry, especially given the limited English skills and relative cultural isolation of the Mien.

The concept of embeddedness was utilized to analyze Mien socio-economic networks, and this proved to be useful in explaining the recent growth in Sacramento County Mien strawberry production. While farm entry was mediated by direct marketing opportunities, it was the social embeddedness of the Mien community that was largely responsible for so many new farm entries. More research should be done on the success of the Hmong strawberry producers in Fresno and the cooperative marketing networks they are forming, as these are likely to positively impact farm viability for all immigrant growers.

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APPENDIX

Direct Marketing Case Study
Interview Guide

First, I thought we'd start off by talking about farming and your farm.

1. What are your thoughts on farming? Why do you farm rather than making a living another way?
    - Have your reasons for farming changed since you began, or since you came to this country?
    - Before you came here, did you have any previous farming experience?

2. How would you describe this farm?
    - Are you the primary farmer on this farm? (Who does what work on the farm? Do you supply all the labor on the farm? Do you share decision making with a partner?)
    - How long have you been farming on this farm?
    - How much do you produce?
    - How much income do you make from the farm?
    - What are your goals for your farm?

3. How did you get started farming strawberries in Sacramento?
    - Once you decided to produce strawberries, how did you figure out how to set up your operation?
    - Did you start farming with strawberries, or some other crop?
    - How much do other strawberry farmers help you out? How?
    - How much have you grown? How much do you want to grow?
    - Do you plan to diversify in terms of crops grown, industry sector (processing, etc.) and/or marketing strategy?

4. I don't know much about strawberry production. Could you tell us about the strawberry production cycle? What are the steps or phases that you go through during the year?
    - Soil preparation
    - Planting
    - Dealing with weeds/pests. Use chemicals?
    - Harvest
    - Packing
    - Marketing/selling
    - What proportion of costs account for land? Labor?

5. Tell us about your household and family.
    - How many people live in your household?

- Who works off farm? Where?
- What proportion of income and what proportion of work is done off farm?
- How many hours does your family spend working on the farm during the year?
- Do you have to pay them?

6. Tell us the story of how you and your family got here to the U.S. and to California?
    - Age?
    - Where did you/they come from specifically?
    - What year did you/they come?
    - Who did you/they come with?

7. What do you think about the role of agricultural research and extension services?
    - In what ways is it positive?
    - In what ways is it negative?

8. Tell us about how you market your product?
    - Finding a good location
    - Signage
    - Competition
    - Regulations
    - Are there things you would like to do in the future? Why aren't you doing those things yet?

9. What would you do differently if you could? What is your ideal farming situation? Why aren't you doing those things now?
    - Hired labor or family?
    - Chemicals or sustainable?
    - Scale?
    - Shared resources/collaborative practices?
    - Buy or lease land?

Thank you so much for your time. We really appreciate it. As we are reviewing our notes, if we come across anything that seems unclear, would it be ok if we call you in the near future just to clarify our notes? Thank you