

Sustaining Agriculture in Urbanizing Counties: Insights from 15 Coordinated Case Studies (a study funded through a grant from the National Research Initiative of USDA's Cooperative State Research, Education, and Extension Service: Grant #2004-35401-14944)

Chapter 4: Labor, Credit, and Other Inputs of Production Besides Land¹

1. Introduction

Inputs of production besides land are also critical to the viability of agriculture in urbanizing metro-area counties. This chapter focuses on the adequacy of six types of inputs in the counties that we studied:

- labor for crop and livestock operations,
- new farmers to replace operators who died, retired, or relocated to other parts of the country,
- veterinarians for large animals,
- credit,
- manufactured or processed inputs (e.g., chemical fertilizers, pesticides, implements, and seeds), and
- water for irrigation and livestock.

As discussed in earlier chapters, our study focused on 2005 to 2007. The findings on input supplies gathered then may not be applicable to the time when readers get this report. However, they can check to see if the problems and/or solutions we found still prevail. Alternatively, there may be instructive contrasts between contemporary conditions and the earlier ones described in the report. Among the problem situations we found were that many farm operations depended heavily on undocumented foreign migrant labor, and there was considerable dissatisfaction with the federal government's program for legal "guest workers." Another, perhaps incipient, problem was that during the period of our research, operators in most of the studied counties faced a narrower choice of separate banks serving agriculture in their communities. Also possibly problematic was the heavy reliance on entrepreneurial talents provided by established local families; it was difficult for persons not belonging to them to become farm operators. Among the apparently successful problem solutions we found was that in the face of the closure of local outlets of equipment suppliers, farmers adjusted to new channels for securing essential spare parts—such as Internet sources that delivered via UPS and FedEx.

Usage of 10 Types of Inputs among the Surveyed Agland Owners

Table 4.1 has two main functions. First, it indicates the percentages of the total relevant respondents² per county who answered the questions about the adequacy of inputs. Figures 4.1 to 4.10 present only the opinions of those owners who reported using the subject input during the previous full production year (2005).

¹ The principal author of this chapter is Dick Esseks.

² By "relevant," we mean a respondent who indicated that either he/she was "an operator of at least some of the land I own in [named] County" or that, though not an operator, "I have detailed information about how my land there is operated."

Second, in providing the percentage by county of users of each type of listed non-land input, the table permits comparisons for the same county across different types of inputs and across different counties for the same input. For example, 72% of the relevant respondents in King County (Washington) reported “family labor” working on their land during 2005 (Table 4.1). By comparison, 51% said “nonfamily labor” had been employed. Not surprisingly, the “family labor” percentages tended (in 12 of the 15 counties) to be higher than the nonfamily entries—from 4 percentage points (Orange County) to 34 points (Carroll County). The exceptions were the two California counties and Palm Beach County. Similarly, excluding King and Palm Beach counties seasonal laborers were more likely to be found in the studied operations compared to year-round workers—by differences of 2 percentage points (Burlington County) to 22 points (DeKalb County).

The differences across counties in the use of large-animal veterinary services could be explained mostly by the variation in percentages of owners who reported dairy cattle, beef cattle, and/or horses on their land (i.e., the higher the percentage of respondents with these “large animals,” the greater the percentage of total respondents using large-animal vets).³ Other correlations were not as high, the closest being a positive relationship between using farm chemicals and patronizing implement dealers.⁴

Table 4.1: Percentage of Surveyed Owner-Operators and “Knowledgeable” Non-operator Owners* Reporting Use of Indicated Input of Production on Their Owned Agland in 2005

County and Number of Respondents	Famil y Labor	Nonfamily Labor	Seasonal Labor	Year-round Labor	Large-Animal Veterinary Services	Credit from Banks and Other Source s	Farm Chemicals	Goods/ Services from Implement Dealers	Goods/ Service s from Seed Dealers	Water for Livestock or Crop Irrigation
King (95)	72	51	23	28	68	27	56	73	59	76
Sonoma (100)	65	79	74	59	39	45	76	84	53	90
Ventura (96)	62	79	78	69	29	45	89	91	44	93
Lancaster (124)	72	52	40	21	49	54	84	82	82	60
Dakota (114)	83	61	45	31	61	76	87	94	92	75
Dane (133)	77	62	44	32	63	63	86	87	88	62
DeKalb (130)	81	66	52	30	42	75	89	89	92	40
Madison (84)	70	49	33	21	49	62	86	85	83	48
Carroll (87)	81	47	28	21	69	37	90	90	85	68
Berks (97)	79	47	28	22	57	35	77	81	81	55
Burlington (115)	75	51	34	32	41	35	67	81	71	59
Orange (114)	82	78	54	49	57	50	76	90	82	72
Larimer (103)	65	52	30	26	62	35	73	75	69	82
Fayette (94)	81	76	64	51	82	46	82	95	93	88
Palm Beach (100)	66	76	45	56	39	40	80	80	65	84
Average percentage	74.1	61.7	44.8	36.5	53.8	48.3	79.9	85.1	75.9	70.1
Median value	75	61	44	31	57	45	85	82	82	72

*“Knowledgeable non-operator owners” are surveyed owners who answered “yes” to the response option, “I am not an operator of my land there [in the county], but I have detailed knowledge about how my farmland there is operated.”

³ The Pearson correlation coefficient for these two variables is .862, which is statistically significant at the .000 level.

⁴ The Pearson correlation coefficient is .732, significant at the .001 level.

Among the types of non-land inputs recorded in Table 4.1, the most commonly reported one used was implement dealers' services, with an average of 85.1%. Agricultural chemicals, seed dealers, family labor, and water for livestock or irrigation ranked second to fifth, respectively, with their averages of 79.9% to 70.1%. Not surprisingly, labor would rank much higher—first—if we aggregated all users of at least one of the four types of labor inputs listed in Table 4.1. The range would be 79% (King County) to 97% (Fayette County), and the average, 86.7%.⁵

“Credit from banks and other sources” sticks out for its relatively low percentage of users—48.3% on average. Only in the five Corn Belt counties (Lancaster, Dakota, Dane, DeKalb, and Madison) did more than half the respondents report using this input in 2005. According to our interviews with local experts, the explanation for credit’s comparatively low usage level was that many operators were self-financing, employing either revenue from their agricultural operations or savings from their other occupations. In fact, among all our 664 surveyed operators for whom farming or ranching (or managing operations) was *not* their principal occupation, 38% reported using bank or other credit in 2005, while among the 573 whose chief occupation was agriculture, the corresponding percentage was 63%.

2. Human Inputs: Labor for Crop and Livestock Operations

Survey Findings

The bar graphs in Figure 4.1 suggest that there was a largely sufficient supply of family labor (spouses, children, parents, grandparents) for 2005 in our studied counties. The specific question was: “In 2005, were you or the farmer(s) of your land in [named] County able to get the following production inputs when they were needed?” The “always” answers for family labor ranged from 33% (Dane County) to 52% (DeKalb County), with a median value of 44% (Table 4.2). With the exception of 57% in Sonoma County, the combined percentages for “always” and “most of the time” approached or exceeded two-thirds of the total users—from 66% (Burlington and Larimer counties) to 85% in DeKalb County. The median value was 71%.

⁵ The other 13 values for this aggregate “labor” variable are: Sonoma, 94%; Ventura, 95%; Lancaster, 82%; Dakota, 90%; Dane, 82%; DeKalb, 90%; Madison, 82%; Carroll, 86%; Berks, 83%; Burlington, 84%; Orange, 90%; Larimer, 78%; and Palm Beach, 89%.

Figure 4.1

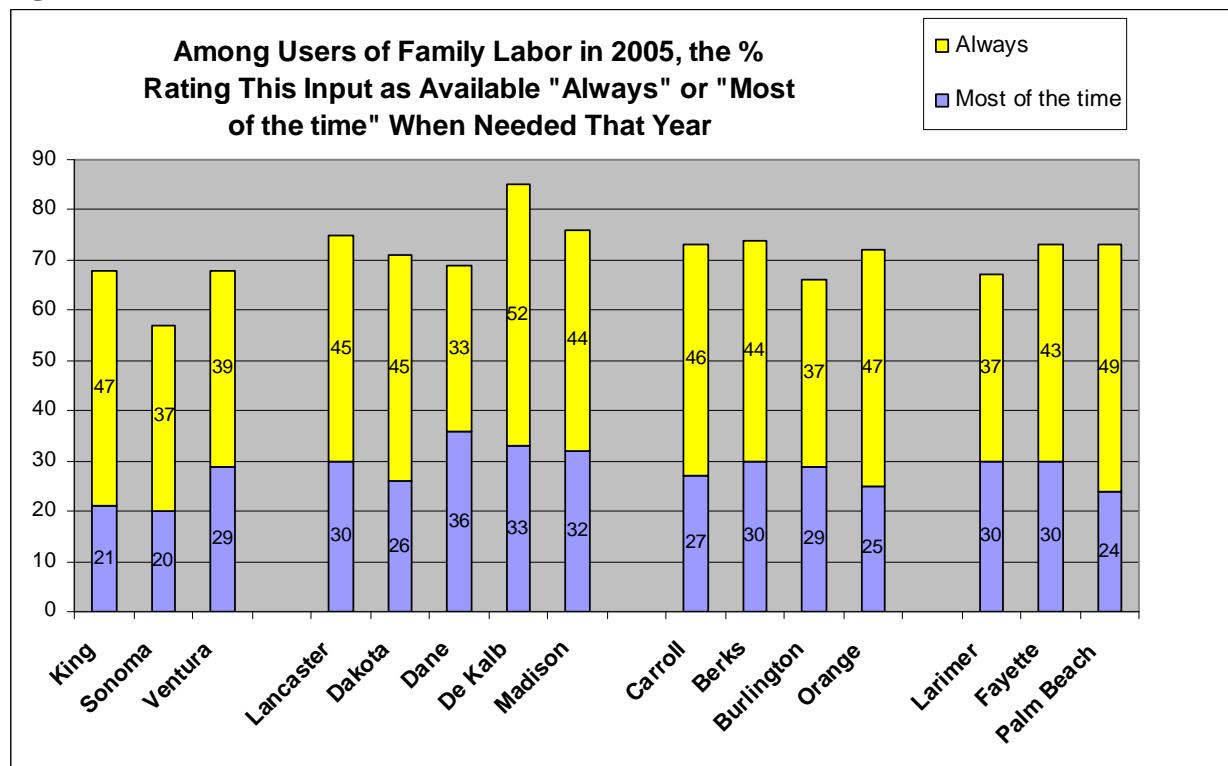
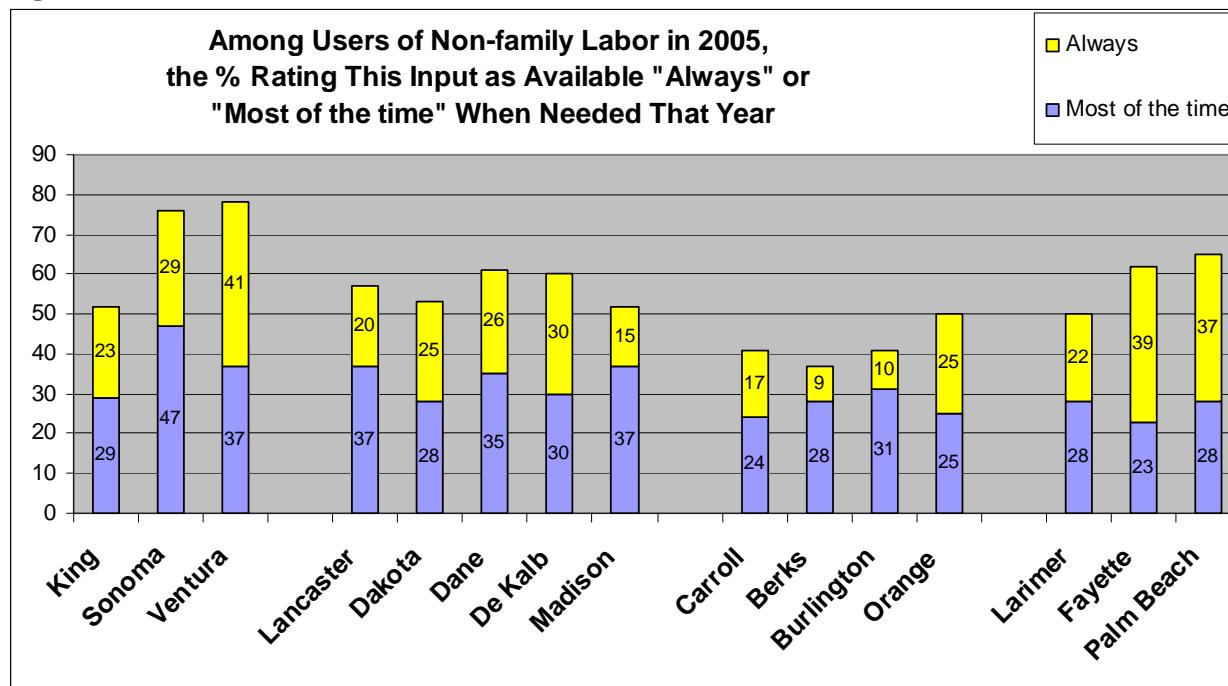


Table 4.2: Percentages of Surveyed Users of Four Categories of Labor Inputs of Production (Family Labor, Nonfamily, Seasonal, and Year-Round) Reporting Their Ability in 2005 to Get the Input When Needed “Always” or at Least “Most of the Time”*

Evaluation Category	Range (%)	Median Value	Number of Counties at the 50% or Better Mark	Number at the 66% or Better Mark
Family labor: Percentage available always	33 to 52	44	1 of 15	0 of 15
Family labor: Percentage always or most of the time	57 to 85	72	All 15	14 of 15
Nonfamily labor: Percentage always	9 to 41	25	0 of 15	0 of 15
Nonfamily labor: always or most of the time	37 to 78	53	12 of 15	2 of 15
Seasonal labor: Percentage always	8 to 37	26	0 of 15	0 of 15
Seasonal labor: Percentage always or most of the time	21 to 74	57	9 of 15	2 of 15
Year-round labor: Percentage always	16 to 64	43	3 of 15	0 of 16
Year-round labor: Percentage always or most of the time	59 to 90	67	All 15	10 of 15

*Range, median value, and percentage of counties with a value of at least 50% and percentage with an entry of 66% or better.

Figure 4.2



The survey's findings for nonfamily labor were not nearly as positive (Figure 4.2). In just two of the 15 counties (Sonoma and Ventura) did as many as 66% of the surveyed users report that their needs were met "always" or "most of the time." And the four Mid-Atlantic counties, plus Larimer, failed to have even majorities when the two ratings were added together. The "always" responses by themselves varied from only 9% (Berks County) to 41% (Ventura County), with the median being 25% rather than the 44% level for family labor. The combined percentages for "always" and "most of the time" ranged from 37% (Berks County) to 78% (Ventura County), with a median of 53%.

Figures 4.3 and 4.4 report the percentages of satisfied users for *seasonal* and *year-round* labor. Overlap is likely with the data for the previous two figures on family and nonfamily labor since workers could belong to one of those categories as well as having either seasonal or year-round employment status. Among the four figures, the third—about seasonal labor—shows the greatest range in the combined percentages—53 percentage points, from 21% in Carroll County to 74% for Ventura County. The "always" answers for seasonal labor ranged from just 8% in Carroll County to 37% for DeKalb County, with a 26% median (Table 4.2).

The year-round labor picture looked better. The lowest combined "always" and "most of the time" value was an impressive 59% (King and Burlington counties), while the highest reached 90% (Ventura County), and the median was 69%. The range for the "always" responses varied from 16% in the Burlington County sample to 64% in the Ventura County sample, with a median of 43%.

Figure 4.3

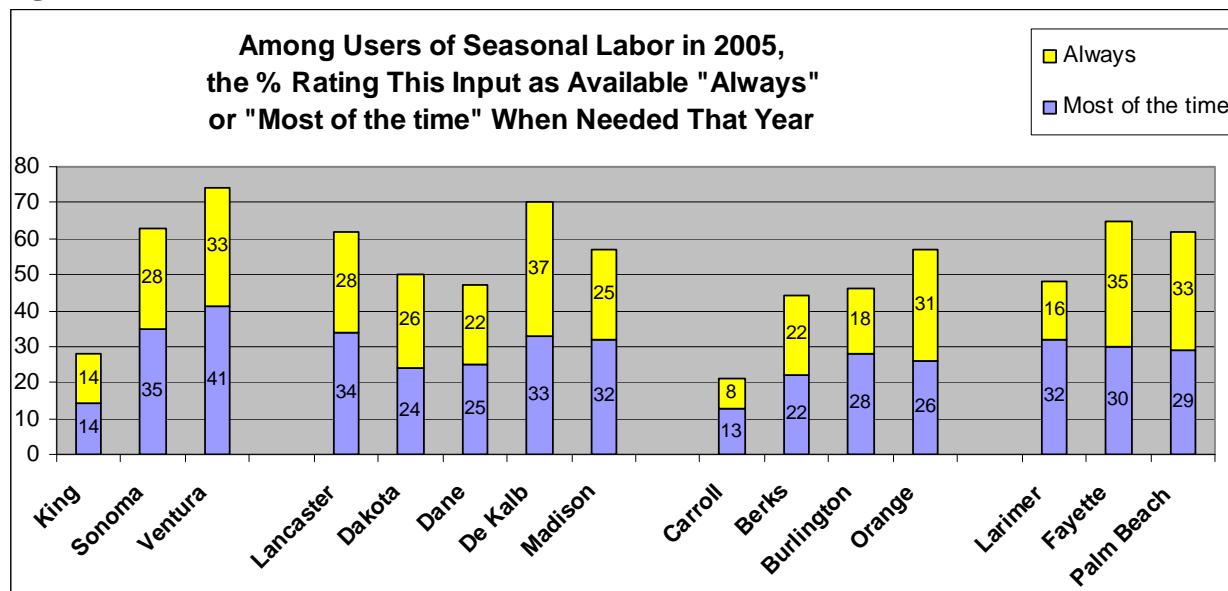
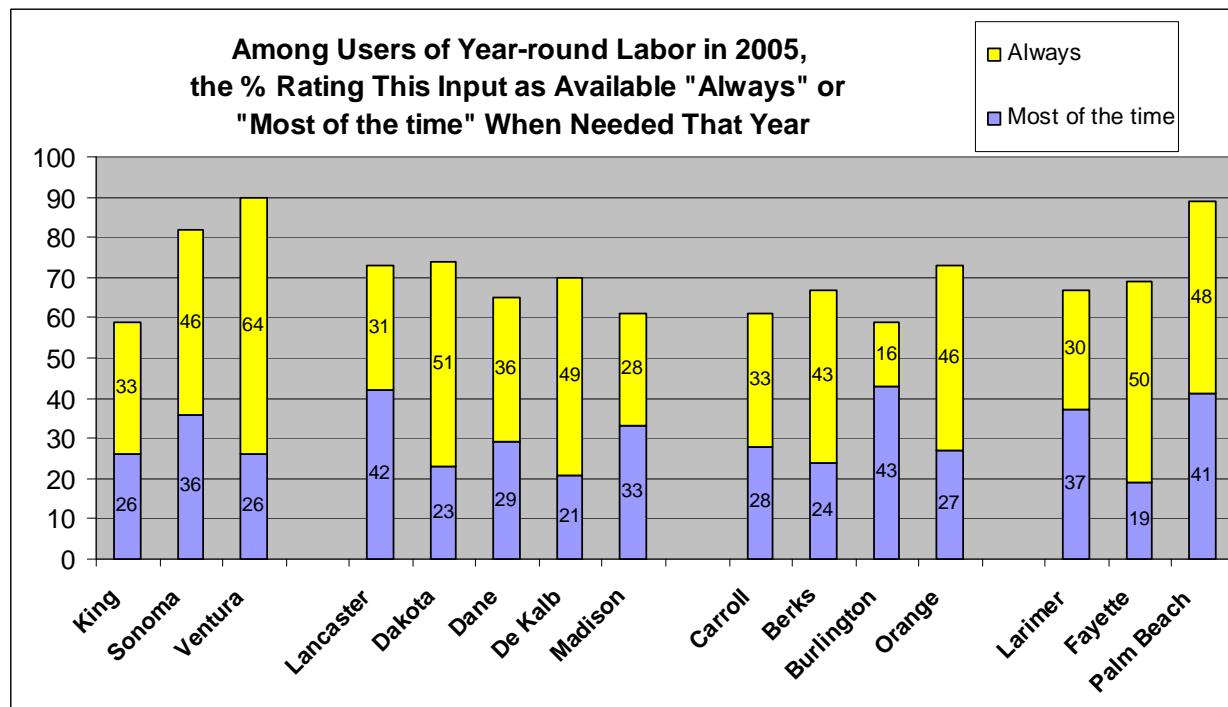


Figure 4.4



Regression Analysis

For the four types of labor inputs (as well as for the other seven types of inputs discussed in the chapter), regression analysis was used to identify predictors of operators' satisfaction with the adequacy of supplies. Among our hypothesized causal conditions were:

- gross sales and total land farmed (owned and rented),
- whether farming or ranching was the respondent's principal occupation,

- operator's age and number of years operator had been farming,
- whether the operator had a written succession plan to transfer ownership and management of the agricultural land,
- percentage of the operator's total gross sales marketed through wholesale outlets,
- percentage marketed via direct outlets,
- number of "acres of farmland you owned in [named] County devoted to the following uses": vegetables, fruits, landscaping products, grains, hay and other forage, and
- "approximately . . . the typical number of animals being raised there [on their owned land in the county in 2005]" from each of five categories of livestock: hogs and pigs, dairy cattle and calves, beef cattle and calves, poultry for meat or eggs, and horses.

Because this analysis was exploratory, and because the statistically significant predictors we found at the county level tended to be very small in their apparent causal functions,⁶ Table 4.4 presents the regression findings for *the entire subsample* of surveyed owners who were operators, 1,237 respondents.

Level of gross sales was a significant predictor for all four types of labor inputs (Table 4.3). Farmer-users of those inputs were *more* likely to be satisfied ("+" before the variable name) if their gross sales were at least \$50,000 compared to users earning less (other things being equal). Perhaps the higher the sales, the greater the operator's capacity to afford the wages and salaries needed to secure adequate supplies of those types of inputs.

Besides these regression findings at the level of all surveyed operator-users in our data set, we used chi-square analysis to test for significant differences in our individual county samples among farmers employing *seasonal labor*. In 12 of the 15 counties, proportionally more operators with at least \$50,000 in gross sales were satisfied with their supply of seasonal workers compared to users without that much revenue. In six counties the differences were statistically significant⁷—Ventura, Lancaster, Dakota, Burlington, Orange, and Fayette counties.

Regression analysis of the survey data found also that the more acres of owned land operators had planted to fruits and berries, the more likely they were to be satisfied with their nonfamily, seasonal, and year-round labor supplies. Again we tested for this relationship in our county samples. In all three of the counties with nontrivial numbers of growers of fruits (15 or more) in their samples (Sonoma, Ventura, and Burlington), the operators who had at least the median number of acres in fruits and who employed seasonal workers were more likely to report satisfaction with that input than those with fewer or no fruit acres. It might have been easier to secure sufficient productive workers for fruit crops, such as wine grapes and other fruits that enjoyed high unit prices, because they could support attractive wages.⁸

In contrast, grains tended in 2005 not to earn well. However, our surveyed operators with relatively substantial acres planted to grains that year were more likely to be pleased with their

⁶ With pseudo R-square values of only about .05.

⁷ In chi-square tests at the .10 level.

⁸ For two examples, respondents with fruit growing on their owned land in Sonoma and Ventura counties were much more likely to be satisfied with the supplies of nonfamily labor in 2005 compared to surveyed owners without that type of crop (other predictor variables held constant).

supplies of family labor. One reason for this relationship may be that since grain production is normally not labor-intensive, it was relatively easier to meet labor needs. Fortunately, we had interviews with local experts to supplement these speculations about cause and effect.

Table 4.3: Traits of the Farmer's or Rancher's Operations and Traits of the Operators Associated with a Higher (+) or Lower (-) Likelihood of Respondents' Satisfaction with the Supply of the Particular Production Input

Production Input	Sales or Acres	Principal Occupation or Education	Age or Years Farmed	Had a Successor or a Plan	Percentage Whole or Direct	Crops	Livestock
Family labor	+ \$ of gross sales			+ Had a succession plan		+ Acres in grains	
Nonfamily labor	+ \$ of gross sales					+ Acres in fruits	+ Number of horses
Seasonal labor	+ \$ of gross sales				+ Percentage wholesale	+ Acres in fruit	
Year-round labor	+ \$ of gross sales				- Percentage direct	+ Acres in fruit	
Large-animal vets	No hypothesized predictor variable qualified was statistically significant for any of these outcomes.						
Farm chemicals	+ \$ of gross sales		+ Years farmed		+ Percentage wholesale		
Credit			+ Years farmed			+ Acres in grains	
Implements			- Years old		+ Percentage wholesale	+ Acres in grains	
Seeds	+ \$ of gross sales		- Years old + Years farmed			+ Acres in grains	
Water	+ \$ of gross sales					+ Acres in grains	- Number of beef cattle

Interview Findings Regarding Crop and Livestock Labor

Sources of Labor: As with our interview data on all topics, we cannot claim that opinions gathered about the adequacy of production inputs are completely valid. Our samples are too small. However, where the interviewees agreed with the surveyed owners, we may well have “gotten it right.”

Virtually none of our interviewees complained about the supply of *family labor*, a set of findings congruent with our bar graph on that input (Figure 4.1). Across the 15 counties 72% was the median percentage of surveyed respondents reporting they could secure adequate help from family labor “always” or “most of the time” (Table 4.1). The interview data on *nonfamily labor* also matches rather well with Figures 4.2 and Table 4.2, indicating less satisfaction with input supply, with a median of 53% rather than 72%. Interviewed experts reported difficulty meeting the needs of dairy, vegetables, and other sectors requiring considerable hand labor. They frequently or mostly used immigrant labor. Local residents, as well as some migrants, tended to shun agricultural labor because they could earn more money in urban or suburban jobs and also thereby avoid farm dirt, odors, and working outdoors in bad weather. By contrast, grain

operations tended to be easier to satisfy because of their typically high degree of mechanization and seasonality in labor demand (i.e., planting and harvesting).

Each one or group of quotations (under the same “bullet”) given here and in other topic subsections of this chapter comes from a different county. And the opinion presented in each bullet is shared—at least in general terms—by at least one other interviewee from the same county (whose quotation is either included there or omitted for lack of space). If a county’s informants disagreed significantly, we either present the opposing views or we present the one that had at least three-to-one support.

The Role of Migrant Workers, the Kinds of Products They Helped to Raise, and the Related Unwillingness of Local Residents to Do the Work:

- “Part-time migrants do orchard pruning. Mexicans pick blueberries. High school kids won’t do that kind of work all day, and that’s what we need done.” But for grain farming, migrants did not seem as important: “Most grain farmers can do the work with a son or other relative. My son works with his son,” said a semi-retired grain farmer. (Burlington County)
- “Migrant labor is needed for weeding [and] harvesting by hand. Mixed vegetables and fruit rely on hand-harvesting. They work in packinghouses, and they generally don’t do a lot of equipment work.” “Most of our dairy farmers have some migrant workers; usually the bigger farmers who get them to be milkers.” (Orange County)
- “There has been a lot of immigrant labor coming in the county in the last 10 years, and it seems that there is enough labor supply due to the Mexican workers primarily. They are working in the horse farms, for tobacco and vegetable farms as well.” (Fayette County)
- “More and more livestock farms [in DeKalb County] are using . . . immigrant labor, and most of these livestock managers think this works out well.” Other sources from the same county said that grain farms did not need much labor except at planting and harvesting when “there is still an adequate supply of retired farmers who want to work in spring and fall.” The problem sectors were “more labor intensive operations. Livestock and niche markets and landscaping are always looking for labor.”
- “Lemons are short of labor. Migrant workers are a must.” (Ventura County)
- “Labor is available. Of course, some of it is immigrant and a lot of milking is done by immigrants.” (Dakota County)
- “Field workers are a problem. Lots of need for immigrant workers,” although it “helps that the type of crops raised in this county [mostly grains] have low labor needs.” (Madison County)
- “Labor is a problem in [Larimer] County. This is because there is this tendency to produce more cucumbers and other vegetables. The small farm operations concentrate on vegetables, and this is more labor intensive.” A lot of migrant workers were used; but since Larimer County lacked sufficient affordable housing for them, they had to be bused in from outside the county.”
- “Locals won’t work now. Up until 14 or 15 years ago, I’d have four or five . . . boys come by the end of April or first part of May saying . . . ‘I’m finishing high school, and I’m looking for a summer job. Can we crew with you?’ That’s the labor I always used; no local guy has come by here in 10 years, asking me for a job.” (Sonoma County)

- “Large Hispanic population. A lot work on dairies and horse farms.” “Hired quite a few Mexicans, but compete with the construction people. When the boom was big, could not compete with \$15 an hour. . . . Most white guys won’t want to do the [field or livestock] work.” (King County)
- “Labor is very difficult, and it is impacting the fruit and vegetable folks. They do have migrant labor, but lately this labor pool finds they can do better on construction crews.” (Carroll County)
- The picture in Palm Beach County was mixed. While one expert told us that the supply of labor was “more than adequate,” two others had concerns: “Not too difficult, but there are some problems lately due to INS’s more stringent policies. This might become a problem in the future in case the rules are enforced more.” “With immigration reform not yet resolved, we faced continued labor shortages. We have seen oranges left on trees, tomatoes and sweet corn left in the fields and disked under because of this problem.” (Palm Beach County)

Competition from Nonfarm Sectors: Competition from nonfarm sectors increased the wages farmers had to pay. However, if that part of the local economy was not doing well, it released workers for farming.

- “Labor is tough in this area. Farmers that do have a hired hand have trouble because you can go into town and flip burgers for eight bucks [an hour].” (Ventura County)
- “It’s difficult to find good quality workers willing to work at reasonable rates. Now I pay nine to eleven dollars per hour. Most of the day workers want 15 and want to work only four to five hours a day.” (Sonoma County)
- “Farmers who are looking to hire must compete with [City of] Madison companies who offer vacation/insurance/retirement.” (Dane County)
- “Urbanization has its plusses and minuses. It provides a larger labor pool, but more competition means the need to pay higher wages.” (DeKalb County)
- One advantage of non-ag jobs nearby is to keep migrant workers busy between farm jobs. “We have a couple of cement and landscape companies that are quite large. So a few ag workers go over to that kind of business for a week or two.” (Carroll County)
- “[Agricultural] labor is expensive here because it competes with the urban market for labor.” However, the people “in the service industry are some of the first to be laid off, and so sometimes they find themselves milking cows.” (Dakota County)
- “There is competition with fast food chains. There’s been a large increase in the Hispanic population in a lot of the farm areas. Buy they are moving to fast food chains, getting in out of the weather and earning more money.” (Burlington County)
- “Labor is always a problem with our farmers, especially if young kids want to work at McDonald’s or a mall versus work in the hot sun, even though kids can get 10 bucks an hour [working on farms] if they’re worth it.” (Orange County)
- “The migrant workers (they are mainly from Mexico) prefer to work in construction. The pay rate is higher, and it is not seasonal.” (Larimer County)
- “For seasonal type of labor, the situation is more complicated. There are truckloads of people looking for work, but not all the time. After awhile they find jobs either with a bigger farmer (a more stable) or another job, and it can be a problem. However, I do not think that this is a big problem in Fayette County.” (Fayette County)

Concern about Loss of Hispanic Labor:

- “We definitely need those folks to help out in the fields. I do believe that some type of guest worker program is needed. . . . The California economy definitely depends on the immigrant work force. It’s getting harder and harder each year. Some of the dairies are having a really difficult time over the past couple of years.” (Sonoma County)
- “Labor is good for now, but the conservatives will ruin the sector if they don’t pass a guest worker program.” (Ventura County)
- “Immigrant reform is needed, such as for a guest worker program.” (DeKalb County)
- “Labor is a potential major problem. Some of the debate about immigrant issues [in the summer of 2006] is very disturbing because we can’t be here without our helpers. Not much I can do about that. If the worst-case scenario, we’d move on, but I don’t know in which way.” (Burlington County)
- An Orange County expert told us in 2005, “There should be no problem in supply of migrant labor in the foreseeable future in Orange County, unless somebody puts up a large fence at the Mexican border.” However, by October 2006, President Bush had “signed into law a bill providing for a 700-mile fence along the country’s southwestern borders.”⁹
- “As long as the illegal immigrants are there, and the laws are not in place or not enforced, everything is fine.” (Fayette County)

These kinds of concerns may have been widespread in the country. USDA’s Economic Research Service (ERS) found that in 2006, nationwide, 43% of hired farmworkers were of Hispanic ethnicity and 95% of them were noncitizens (Kandel, 2008). From the National Agricultural Workers Survey, ERS learned that “roughly 50% of all hired crop farmers lacked authorized status” (Kandel, 2008, p. 12), that is, they were vulnerable to deportation.

Enforcement of Immigration Laws: Interviewed farmers in counties from both coasts testified to lenient or selective enforcement of federal immigration laws through at least 2006 or 2007.

- “If a new worker comes into the office and presents to me credentials that are on the list of acceptable credentials [Social Security card, U.S. passport, a state-issued ID] and they appear to be valid, I can employ him. . . . [T]he law says that I don’t have to look into that beyond the obvious appearance of the credentials looking invalid.” (Burlington County)
- “We’ve never had anybody [from enforcement] come by here. I’ve not heard of any other small operations being bothered. It’s mostly where there are big crews and a lot of labor contractors who do custom harvesting and that kind of thing. They do go around to some of the places where the day workers hang out. . . . I do fill out an employment form for every employee. It’s not clear that it has to be submitted. I don’t submit them.” (Sonoma County)
- “They have to show me their papers. Do I question them? No. I fill out the I-9 forms and withhold their taxes.”¹⁰ (Orange County)

⁹ David Stout, “Bush Signs Bill Ordering Fence on Mexican Border,” *New York Times*, October 26, 2006.

¹⁰“All U.S. employers are responsible for completion and retention of Form I-9 for each individual they hire for employment in the United States. This includes citizens and noncitizens. On the form, the employer must verify the employment eligibility and identity documents presented by the employee and record the document information on the Form I-9. Acceptable documents are listed on the back of the form, and detailed below under ‘Special’

- “In 2007 [through at least October] we’ve been able to get the needed labor most of the time. Not too much of a problem. Because freezing weather ruined crops farther south, migrant laborers were up here looking for work. [Any raids by the federal government?] They are H-2A [legal guest workers]; mostly that’s what we use.” (Carroll County)
- Through at least July of 2007, “no raids [by enforcement officials]. I know businesses that have had that happen, but not any farms.” (Sonoma County)
- As of July 2007, “My clients who use migrant labor are concerned about the future, but got what they needed this season. There is a network out there. They get on the phone to get their workers. But there is a lot of fear. Here there were raids only on food service, hospitality, processing. Not farm operations.” (Berks County)

Problems with the Legal Guest Worker Program (H-2A)

Interviews in two Mid-Atlantic counties and in Fayette County gave us insights into the legal channel for recruiting seasonal workers from abroad, the H-2A “Agricultural Guest Worker Program.” Among the problems described to us by local experts familiar with this program were the required pay levels, worker transportation and housing costs, burdensome paperwork, and uncertainty of supply.

- A knowledgeable state official told us, “None of the growers there [in Orange County] can afford it. Under H-2A they would have to pay the adverse-effect wage rate, which is about \$9.05 per hour. . . . [Instead] growers pay \$6.50 to \$7.00 an hour.”¹¹
- “So much paperwork [that you] almost need one member of the family to take charge of that program and manage all the complications. And you need to transport the workers from their home country and back. If you value that person and want to keep them, you have to go through extraordinary measures to assure that they get back to their country of origin, and then they are allowed back next season.” (Berks County)
- “The farmers on the panel [convened by Cooperative Extension] were very clearly saying that the system doesn’t work. Lack of housing was a big part of it, [and they, the farmers] have to provide housing [for the guest workers]. . . . And from a zoning perspective you just can’t put worker housing on your farm. So from a housing perspective it was not workable.” (Larimer County)
- “I was on the phone consistently two or three weeks with my labor contractor who has connections in Mexico to get some guest workers to come here through the H-2A program. It resulted in my calling my congresswoman and her staff, my state senator and his staff. They had to call Immigration [and Naturalization Service] in the Boston region and try to pull my application and move it up and to make sure that things went well at the consulate in Mexico.” (Orange County)
- However, a farmer from Fayette County disagreed with the timeliness criticism. “I use the H-2A program, and it works like clockwork. I have them when I need the workers, and they’ve gotten better over the years.” We heard also that fruit farmers in Carroll County regularly use the program with apparent success, in part at least because they

Instructions.” U.S. Citizenship and Immigration Services, <http://www.uscis.gov/figureics/formsfee/forms/i-9.htm> (accessed October 29, 2006).

¹¹The “adverse effect wage” is set by the U.S. Department of Labor to be high enough so that wages sought by citizen farm workers are not deflated due to lower wages that migrants are willing to accept and are paid. For example, in 2005 the “adverse effect wage” required of farmers hiring migrant workers under H-2A was \$9.05. For 2006 it was pegged at \$9.16 (Whittaker, 2006).

have the financial resources to meet the program's standards such as for worker housing: "We mostly use H-2As. We have the biggest fruit producer in the state. . . . They grow all kinds of stuff and have all kinds of housing so that they can bring in a bunch of migrant workers."

3. Human Inputs: New Farmers

Interview Findings

When inquiring about the supplies of farmers of new operations and of farmers to replace those who were retiring or had died, we relied on interviews with local experts such as officers of USDA agencies, farmer organizations, and recommended specialists on farm labor. In the mailed questionnaire, we asked about owners' succession plans and operators' successors (if any), topics that we cover in the report's final chapter, "Outlook for the Future."

In none of our 15 counties, except perhaps for Larimer, did these interview sources report a serious scarcity of replacement farmers. However, almost all the successors these sources mentioned were children or other relatives of the leaving farmers. Potential newcomers faced the usually formidable obstacle of farmland being too expensive to buy. The modest numbers of operators who established new farm businesses typically leased parcels or they bought small ones, doing either hobby farming or raising high-value crop or livestock products on their few acres. Some of these smaller new commercial farmers were immigrant agricultural workers who rented or managed someone else's land or, if successful with their savings, had bought land. We heard about "beginning farmers" receiving loans from USDA's Farm Service Agency (FSA) and assistance from FarmLink. The latter is a nonprofit organization active in California, Florida, Pennsylvania, New Jersey, New York, Washington, and other states where we had study counties.¹²

In at least some states, staff constraints limited the extent to which Cooperative Extension could help new farmers. We were told of one extension program in the northern New Jersey, but none functioning in the southern half of the state where Burlington County is located. Similarly, in the region of New York to which Orange County belonged, a well-informed source described a program that helped immigrants, "But otherwise [the efforts are] minimal. We're poorly equipped to handle new farmers. Cornell's FarmLink program for mentoring works better upstate" (rather than where Orange County is situated). Beginning farmers in Dane County had convenient access to the University of Wisconsin's School for Beginning Dairy and Livestock Farmers, which since 1995 has offered classroom instruction and on-farm internships. A survey of 74 graduates found that 34% of them reported having started their own farm businesses, and another 38% were planning to do so (University of Wisconsin, 2008).

¹² According to its FarmLink California's website, "Our mission is to build family farming and conserve farmland in California by linking aspiring and retiring farmers [through their Internet site, among other channels]; and promoting techniques and disseminating information that facilitate intergenerational farm transitions." For example, on July 25, 2008, California FarmLink listed 39 agricultural properties in Sonoma County from which aspiring farmers might find one or more that they could financially and technically be able to farm, including a "10 acre partnership near Santa Rosa for ranching" and "15 acres for lease from Petaluma Goat Dairy," [http://californiafarmlink.org/joomla/index.php?option=com_cmsrealty&Itemid=59&cmsrealty=user&county_or\[\]&S](http://californiafarmlink.org/joomla/index.php?option=com_cmsrealty&Itemid=59&cmsrealty=user&county_or[]&S) onoma&action=searchresults.

Besides heirs and others who were genuinely new to being farm operators, a third group consisted of experienced farmers who were new *to the county*, but not to farming. They tended to relocate from other areas where farmland prices were higher. As discussed in Chapter 3, these transferees bought their land in a studied county using money gained from selling farmland they had owned in another county, probably closer to urban areas. They benefited from the federal Internal Revenue Code's Section 1031, which allowed them to avoid capital gains taxes if they used the sale's proceeds to purchase similar assets.

Types and Quantities of New Farmers and What They Were Raising

Descendant Farmers:

- “[There are] very few [younger farmers less than 40 years old]. . . . They must take over the family farm in greenhouse things. Some dairies succeed if passed down.” (King County)
- “There is a real low rate of new farmers because the land is too costly. They are raising whatever their family did, like avocados and citrus, except oranges are not doing well now.”¹³ (Ventura County)
- “Yes, we have younger farmers: Lots of continuation of farms to the next generation.” (Dakota County)
- “No new farmers, except heirs.” “Not many of the newer types of producers.” “Don’t know of anything like [farmers] producing goat meat or cheese or ducks for emerging markets.” (Lancaster County)
- “Very few farmers under 40; rare—maybe 10 in the past five years—and those are generational . . . from tight-knit dairy families.” (Dane County)
- “Not too many entering farming; you need to be born into it. Nursery farms have some younger operators.” (Madison County)
- “Yes, we have younger farmers.” “You have to be a descendant really.” “Aside from the federal program [of the Farm Service Agency, to be discussed later in this chapter] that is designed to help a new farmer get his feet on the ground, no program to help. And even that program is not used much.” (Dane County)
- “Few new or younger farmers seem to be entering farming in Carroll County. Those that do are usually the next-generation farmer, able to inherit farmland from the parents.” “No ‘new couple’ types are coming in. The factor there is the availability and price of the land.” Heirs might have faced the difficulty of paying off either their parents for whom the farm was their retirement resource and/or co-heirs who chose not to farm or be financial partners. “The only way for new farmers to come in is for the farm kids to sell the [antidevelopment conservation] easements and use the money to pay Mom and Dad for the farm.” (Carroll County)
- “The most likely source was the existing farm family that already held considerable land, except some kids had left to farm in other states.” (Orange County)
- “Some sons come back to help with their family operation, but there are not many. They are sent by their families to get educated, and just very few come back.” (Larimer County)

¹³ Where, as in this case, a “bullet” has just one quotation, the reader should know that our interview notes contain at least one other quotation with the same general content from the same county.

Specialty-Product Farmers or Managers:

- “[There are] very few [operators new to farming] . . . probably 30 to 40 new farmers each year. Very small organic operations, cheese makers, and half of them fail.” “Most are doing vegetables, a few have specialty dairy (goats and cheeses), and some are in fruits.” (King County)
- “Some of these next-generation farmers [children of current operators] are starting their own niche markets, such as for organic vegetables, selling through a subscription plan” (rather than producing the traditional products like corn and hogs). (DeKalb County)
- “From the standpoint of specialty commodities, agriculture has become so technical that you can’t go to your phone book and find farm managers for orchard crops or vegetables, as you can with wine grapes. You need to do it yourself. Over the past 15 years, the classes [at the community college] used to be full of students. Now we have a hard time filling those classes. Last time the specialty crops production class had eight students and we had to cancel it.” (Sonoma County)

Relocating Farmers:

- “Not many new farmers. The number seems to be limited to individuals that are going into business with family. With the high cost of equipment, land and cash rent limit the ability of an individual to get started.” Exceptions are those “coming into the area after their land has been bought in an area of a higher valued farmland.” (DeKalb County)

People of Wealth:

- “The wealthy come and buy small estates and play, raising grapes, vegetables, have some alpacas or emus, and try to grow some kiwis or put up a greenhouse.” (Carroll County)
- “There are no new farmers in the county in the traditional way. Just the hobby farmers.” “The only exception is represented by the fruit farmers—very intense production—fruits and vegetables. About 41% of the small farmers sell less than \$2,500.” (Larimer County)
- “There are hardly any new farmers in Fayette. This is what they call the ‘High Rent District.’” “The exception is horse farming.” “There are people coming from all over the world for horses and pay very well.” “There are Arab sheiks, influential people from Ireland, France, and other countries that own farms in Fayette.” (Fayette County)

Origins of New Operators Who Were Not Descendants, the Rich, or Transplants:

- “A lot of the new farmers taking over from retirees are *immigrant farmers*, like a Hispanic who had been working there.” “Many Hmong farmers are starting up by renting land of estate owners.” (King County)
- USDA’s Farm Service Agency has a loan program for beginning farmers. We were told, “One new farmer was given credit in the last two years, a Hmong doing 40 acres of vegetables.” (Dakota County)¹⁴
- Also there have been “*former corporate executives* trying to learn either how to grow the grapes on their expensive landscape or to be able to converse with managers they might

¹⁴ “To qualify for the Direct Farm Ownership Down Payment Loan Program, applicants must be beginning farmers and ranchers, provide a down payment of at least 10 percent of the purchase price, and meet all other direct farm ownership eligibility requirements.” USDA, *Farm Bill Forum: Comment, Summary and Background*, p. 2 of 5.

hire. But most of the workers in this area are coming from the Hispanic population, and many of them are working their ways up to management roles.” (Sonoma County)

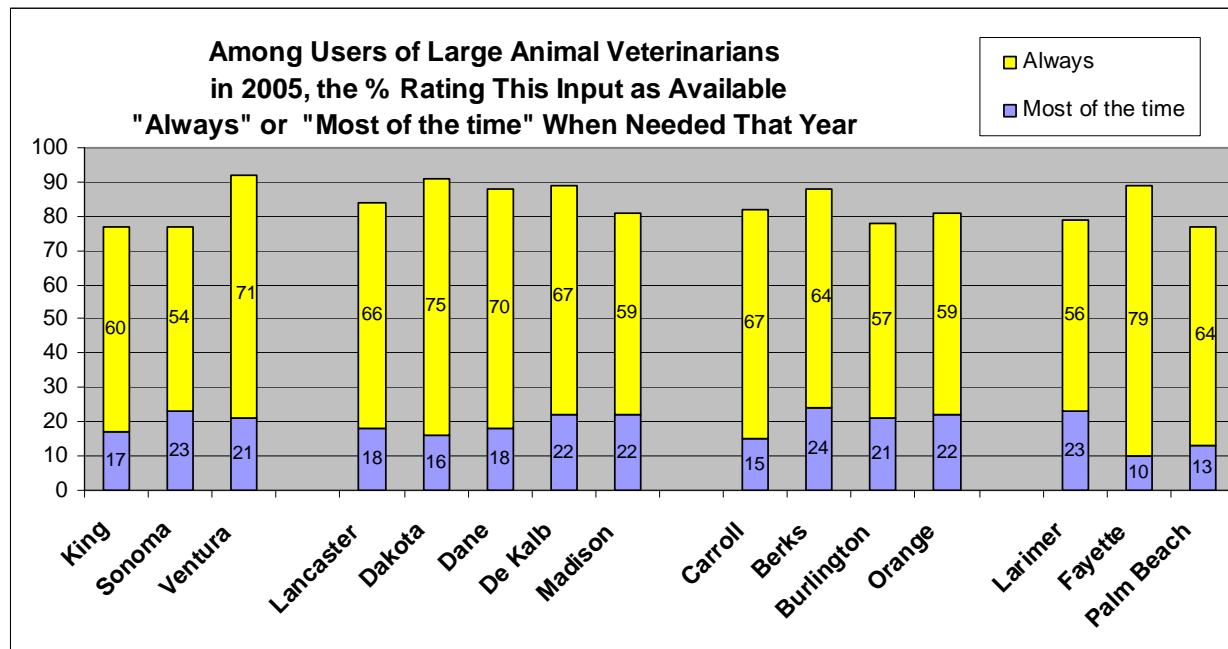
- “Most of the new or smaller equine farms are either the ones started by these *former farm managers or by rich people.*” (Fayette County)
- “Some are *Mexican farmers* going into strawberries, 10 to 20 acres. Some migrants are starting new operations.” (Ventura County)

4. Human Inputs: Large-Animal Veterinarians

Survey Findings

Another kind of potentially critical human input of production is the large-animal veterinarian taking care of dairy cattle, beef cattle, and horses. Table 4.1 (above) shows that from 29% of our relevant survey sample in Ventura County to 82% in Fayette County used such services during the previous year. Figure 4.5 indicates that these users were generally very satisfied with the availability of the veterinarians. In all 15 counties, majorities—from 54% (Sonoma County) to 79% (Fayette County)—reported that the vets were “always” there when needed,” while from 74% (King and Sonoma counties) to 92% (Ventura County) found them available either “always” or “most of the time.”

Figure 4.5



Interview Findings

The interviewed experts tended to agree that large animal veterinarian services were adequate. However, in some counties we found vets’ traditional customers—cattle and dairy farmers—facing competition from horse operations, hobby farms, and/or pet owners. However, where these traditional patrons were declining in numbers, the newer types of customers with large animals may help to keep up the supply of vets by compensating for the loss of the previous dominant types.

- “There are more veterinarians than there have ever been. This is due to the veterinarian program at CSU [Colorado State University in Fort Collins]. They study there, and then they get jobs there.” (Larimer County)
- “Vet schools are not turning out enough vets. The better majority of that class went to small-animal practices. Retaining them in the area is difficult because of the high cost of living, the outrageous price of homes, and the property tax. We just lost two vets.” “In 1979 we had 300 dairies. As we have fewer dairies, we lose services. Large-animal vets won’t get excited about coming to a county with 60 dairies.” (Orange County)
- “For horses, yes, there is a satisfactory supply. If you have other livestock, no. Bovine vets have to come in from other counties.” “We’re moving to hobby farmers, not a lot of services for other farmers. Because of urban development, the vets and service providers are spending less time with production-type livestock.” (King County)
- “Vets have to go toward small animals or a combo of small and large because this county has made the shift to no feedlots or finishing places, just small herds.” (Lancaster County)
- “Oh, yes, you’re able to get the services of large-animal vets because their bread and butter are all the horses for recreational purposes: dressage, quarter horses, and the leftover time can be applied to serving the about 80 dairies left.” (Sonoma County)
- “We are trying to do more and more of that stuff ourselves. I can’t do a DA [displaced abomasum, or “twisted stomach”], but I give all my own bottles and try to learn how to do pregnancy checks. You got to be on your own. . . . I go on the Internet everyday to an ag talk website, where guys write in with questions. . . . Everyone is honest. Even a guy from New Zealand answered questions.” (Orange County)

5. Bank and Other Credit

Survey Findings

As discussed earlier, many surveyed operators did not use bank credit (Table 4.1). However, among the users, the adequacy ratings were rather high. The combined percentages of respondents finding needed credit available “always” or “most of the time” ranged from 63% in Burlington County to 98% in Lancaster County (Figure 4.6). The “always” percentages were at least 43% across the 15 counties, and the median “always” value was 50%. Of course, these evaluations were made in 2006, two years before the 2008 credit crisis.

Interview Findings

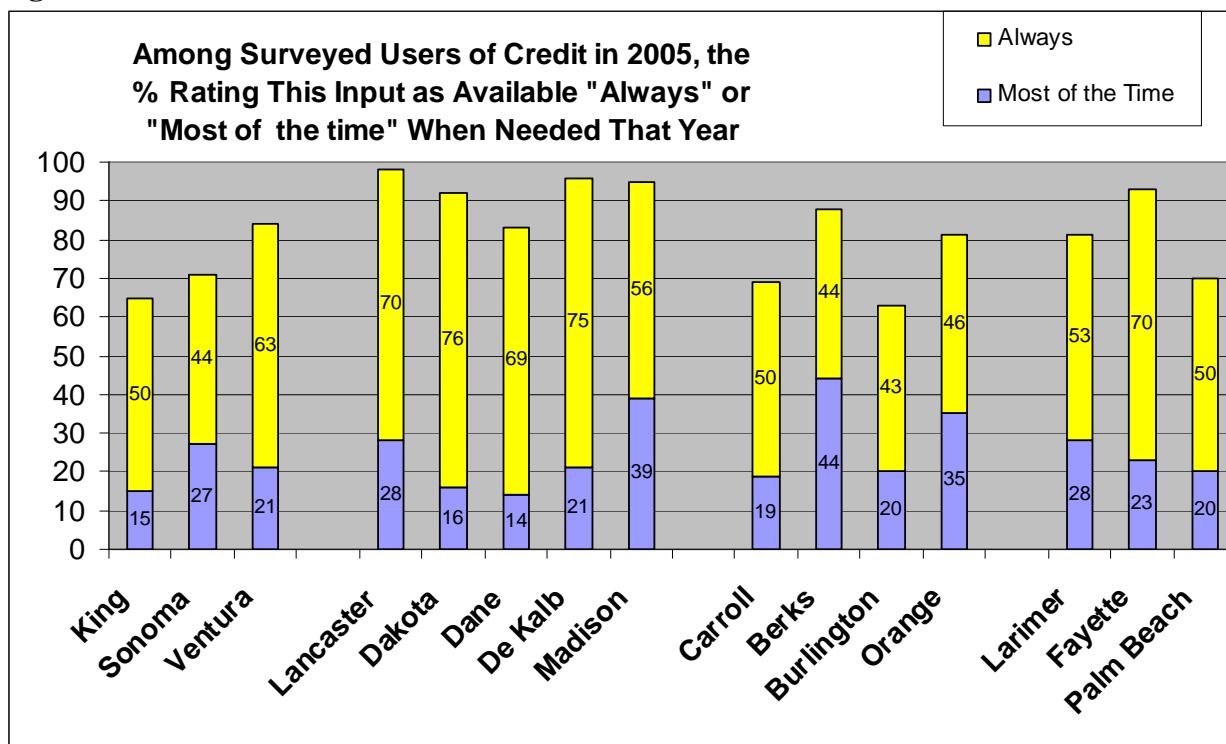
Adequacy of Supply: As with the pattern of responses gathered from the surveyed agland owners, in almost all the studied counties our interviewed experts were largely positive about the availability of credit for agriculture. One variant of this optimistic assessment was that many farmers could do without bank credit.

- “Credit is not a problem.” “Credit is okay as long as the farmer is credit worthy.” (Dane County)
- “Yes, satisfactory.” “Adequate, good farm banks.” “Yes, farmers have a satisfactory choice.” (Lancaster County)
- “We have quite a few banks willing to lend into Berks County. In comparison, places [closer to Philadelphia] like Montgomery and Bucks County struggle.” (Berks County)
- “Yes, there is enough credit available.” “This is not a problem.” “There is enough credit for farmers in the area.” (Fayette County)

- “Haven’t heard of problems.” “Very adequate for good farmers now.”(DeKalb County)
- “There is enough competition, and there is a good coverage —enough of the agricultural area.” “This [credit for agriculture] should not be a problem.” “Adequate; no problem here.” (Larimer County)
- “There is credit available. However, the farmers in the area are rich people, and they don’t need the credit.” “Most farmers don’t need operating capital. Sugar growers need some limited input capital, but nurseries don’t because they have recurring monthly cash flow” (rather than having to wait until harvest to receive sizable revenues). (Palm Beach County)

However, informants reported problems, especially a decline in the separate numbers of lenders; banks showing favoritism to the most profitable ag sectors; and difficulty in obtaining credit to purchase agricultural land.

Figure 4.6



Loss of Credit Sources:

- “Yes—very good, low interest rates and a wide choice. But comparatively worse than in past because community banks have backed away, and regional banks have also.” (Madison County)
- In a second county, although the evaluations were mostly upbeat, two interviewees complained about the withdrawal of commercial banks from agriculture, leaving just a few actors. One of the two explained, “The problem is that bigger commercial banks do not get involved in agriculture because of the high risk.” (Larimer County)
- The same concern was expressed more strongly in a third county: “It’s worse. Most banks consider that farming has become a high-risk business because income stays the same, but the costs go up. Hence, many banks stopped lending operating money.” (Fayette County)

- “We used to get a discount because of the competition [among banks]; now no competition.” “Only half as many banks. Or replaced with those not understanding agricultural borrowers.” (Lancaster County)
- “The financial community has less interest in agriculture. There are no more agriculturally oriented banks. Basically they went out from the county due to a declining agricultural sector there.” (Larimer County)

In all, informants in 10 of the 15 counties complained about a narrowed choice of banks and other credit sources.

Bankers’ Preferences:

- “There are the production credit loans that you can get. Those seem to be primarily for vineyards [the county’s most important type of farming] when they are first getting going.” “Outside the wine industry, who needs it [credit]?” (Sonoma County)
- “The thoroughbred [horse] is the major farm operation in Fayette County, and there is available credit for this because it is profitable.”

Difficulty in Borrowing to Buy Land:

- “Land is just too expensive for banks to loan money to farmers to buy land.” (King County)
- “Real estate keeps going up. Most people need a contract with a winery” (to assure enough revenue to cover the mortgage). (Sonoma County)
- A banker told us, “Climate and soils sustain production of very high-valued crops, but still they can’t compete with land’s prices for development.” (Ventura County)
- A realtor reported, “Land values are very high. They are way above its agriculture value. Therefore, when a farm goes on sale, there will not be any farmers that can buy. It will be sold for recreational purposes—for hunting, horses, and estates.” (Larimer County)
- “We can’t pay for land from farm profits.” (Lancaster County)
- “If a farmer wants to borrow money in order to start a new operation, it does not make any economic sense. This is because one cannot buy land priced at \$15,000 per acre and borrow money to start his operation, and expect enough return to cover all the costs and make a living also.” (Fayette County)

Constraints Facing a Major Actor in Agricultural Banking (Farm Credit System)

Representatives of a major source of credit to farm operators in our studied counties described a problem situation that they believed was serious. Serving each county was an affiliate of the Farm Credit System (FCS).¹⁵ A 2006 report (Heuer, 2006) revealed that FCS banks played significant roles in at least six of our 15 counties (Table 4.4). Managers or directors of affiliates for five of those counties, as well as in two others not covered in Table 4.4, advocated a loosening of FCS regulations regarding loans to part-time farmers, defined as those with less than “50% of their assets and income from agriculture” (Monke, 2005, p. 3). For them, FCS could lend for all agricultural and family purposes, but was limited in its ability to lend for

¹⁵ This banking system consists of “five regional banks that provide funds and support services to 96 smaller Agricultural Credit Associations (ACA), Federal Land Credit Associations (FLCA), and Production Credit Associations (PCA)” (Monke, 2005, p. 1).

nonagricultural purposes. The interviewees sought greater freedom in lending because of the evolving nature of urban-edge agriculture, including the needs of young farmers:

- “For full-time farmers, we can do almost anything. For part-time farmers, we can finance the land and a house but not a restaurant . . . or any other agri-entertainment-type enterprise.”
- “Our core farmer is going in two directions: getting larger or going to part-time. As they go part-time, our lending is limited. To part-time farmers we can lend only for agricultural purposes. For full-timers we can finance nonagricultural purposes. . . . Diversification into nonagricultural business can support the agricultural function.”
- “Diversifying income sources combined with supplementing traditional ag income is the most important survival strategy for many farmers and ranchers. The trouble with meeting these needs is eligibility issues with our regulator, the Farm Credit Administration (FCA). [It] prevents us from following many of our customers into new ventures [such as] . . . a flower shop the spouse operates.”
- “For a young farmer in our six-county area to survive in agriculture nowadays, they need to branch into other enterprises so as to help stabilize their personal financial situation and keep their family in farming. This means that their non-ag assets may eventually become a larger percentage of their portfolio than ag assets.”

Table 4.4: Farm Credit System’s Reported Percentage of Shares of Real Estate and Operating Loans to Agricultural Sectors in Studied Counties, as of 2007*

County	Real Estate Loans (Percentage)	Operating Loans (Percentage)
Ventura	57	“About 20%”
Lancaster	60	15
Dane	60	60
Palm Beach	“Ninety% of my portfolio is real estate. We may have 70% market share.	
Carroll	“Farm Credit has approximately 70% market share for agricultural credit because commercial banks have started to move away from ag lending.”	
Burlington	“First Pioneer believes it has 60% market share of commercial farm businesses in Southern New Jersey, but less than 50% in Burlington County itself.”	
Orange	“Roughly 20% of financing is done through private banking; 60% is done through First Pioneers Farm Credit. . . . The balance is funded through FSA [USDA’s Farm Service Agency], lender of last resort.”	

*Percentages were reported by officers of the Agricultural Credit Associations serving that county (Heuer, 2006).

Credit Opportunities for Smaller Farmers

The responses we obtained when asking about credit opportunities for smaller farmers indicated considerable variation by county, including in some cases reports that banks shunned smaller and/or unconventional operations, news of banks actively cultivating small operations in other counties, and the advantages of being a second-career or part-time farmer when financing operations.

Some Lenders Shunned Smaller and/or Unconventional Operations:

- Banks told a small farmer who leased that they couldn’t help him. “You don’t have enough backing, don’t have land or a house or anything to put up . . . although I got a loan to buy a car [which can be repossessed]. Same with the tractor company; they gave me a loan, zero down, but they can take it back. But we can’t borrow for supplies. This is where the CSA [community-supported agriculture, i.e., customers subscribe ahead to receive farm products during the harvest season] comes in. . . . One year when finances

were getting bad, we borrowed some money from our CSA members. Borrowed almost ten thousand and paid them back in a discount on the subscription.” (Sonoma County)

- “It’s more difficult to get credit for new crops and livestock (goats, for example) because lenders are more familiar with established crops’ markets, estimating profits, etc.” (Madison County)
- “Traditional farmers have the advantage because bankers know their operations and are more comfortable in offering them loans. Bankers often don’t understand the operations of an organic farm and can be more hesitant to lend money.” (Dane County)
- “Small farmers are at a disadvantage if the lender is unfamiliar with the type of crop proposed to grow.” (DeKalb County)
- “[Banks] are not comfortable with lending for niche products—exotic birds, certain types of fish, ostriches—for lack of an established market.” (Palm Beach County)

Some Banks Cultivated the Smaller Customers, Including Part-Time Farmers:

- “We are putting more resources into attracting small farmers—20 acres or so. It is a competitive market for these small farmers.” “It is a recent trend that my bank provides credit to smaller farmers. My bank has tailored credit programs to meet their needs.” “Traditional security markets are open to providing credit for hobby farming.” (Dane County)
- “We help the smaller farmers, especially the part-time farmers. We serve those as well because there are many. They might be more secure than the traditional agriculture people because their primary source of income is not farming. They have other sources of income, and the hobby farm is just a lifestyle choice. They do quite a bit of that, and there is a lot of growth of the hobby farms.” (Larimer County)
- USDA’s Farm Service Agency had an office in each of the studied counties or in one adjoining it and offered credit on subsidized terms under its Beginning Farmers and Ranchers Loan Program.¹⁶ Included were ownership down-payment loans, direct and guaranteed ownership loans, and direct and guaranteed operating loans. When FSA was guaranteeing rather than being the actual lender, the “maximum amounts of indebtedness” could be greater, such as (in 2008) \$949,000 for a guaranteed operating or ownership loan rather than \$300,000 if the farmer or rancher borrowed directly from FSA. The comments we obtained about FSA’s lending suggested an important role in some counties, but not much impact in others. In Dakota County we were told that only one new farmer had received credit under this program in the previous three years. And in Fayette County the program had few clients because, one observer believed, the eligibility conditions were too restrictive (e.g., no more than 10 years as an operator, owned a farm no greater than 30% of the median size for that county). However, in Madison County FSA was reportedly providing most of the credit for types of enterprises

¹⁶ “The Farm Service Agency (FSA) provides direct and guaranteed loans to beginning farmers and ranchers who are unable to obtain financing from commercial credit sources. Each fiscal year, the Agency targets a portion of its direct and guaranteed farm ownership (FO) and operating loan (OL) funds to beginning farmers and ranchers. A beginning farmer or rancher is an individual or entity who (1) has not operated a farm or ranch for more than 10 years; (2) meets the loan eligibility requirements of the program to which he/she is applying; (3) substantially participates in the operation; and, (4) for FO loan purposes, does not own a farm greater than 30 percent of the median size farm in the county.” USDA, Farm Service Agency, *Loan Programs: Beginning Farmers and Ranchers Loans: Overview*, <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=bfl>.

where small farmers are often found (direct marketing, processing, and agritourism). And in Larimer County it was lending to farmers with crop and livestock products new to the county (another area where smaller farmers frequently operate).

- The Farm Credit System also provided loans to young farmers and other typically small operations. Across the country in 2007 “the system’s associations made \$6.3 billion in new loans to young farmers, \$10.4 billion in new loans to beginning farmers, and \$13.0 billion in new loans to small farmers.”¹⁷ We learned about small-farmer loan activity in our studied counties from our own interviews and through reading a 2006 report (Heuer, 2006).
 - The FCS branch office head for one of our counties said, “Small, part-time operations are the future. . . . We need to find these part-time farmers and new startups that are not in the traditional wholesale agricultural industries and present them with value.”
 - His counterpart in another studied county gave this positive assessment: His association “recognizes the credit issues facing young, beginning, and small farmers and created a special incentive program to assist young startup farmers. The program has lower fees, lower rates, and more flexible terms than loans of similar size to established farmers.”
 - In a third county the smaller operations received the majority of the association’s loans: “Today, about 60% of our business is devoted to people that would be considered small part-time farms for the purposes of purchasing land to farm, to build a home on or any other credit needs. The percentage of our business devoted to a traditional ‘full-time’ large farmer would be less than 10%–15% of total business in this county.”

The Role of Nonfarm Income or Savings from It:

- “Small farmers are at a disadvantage if the lender is unfamiliar with the type of crop proposed to be grown. Typically if there is nonfarm income support, it is no problem.” “If small, then maybe credit is not available. But typically, nonfarm income provides enough support to access this credit.” (DeKalb County)
- “The newer [typically small] farmers struggle without support. If you don’t have the history in agriculture, it is a roadblock to getting credit. And the capital needs are so high. Unless you have real estate or something, it is hard. Also, most of the startups fail in my experience. I made four loans in the last year, only one is there still, and they are fairly new. They don’t last long, either. We are typically looking for another source of money—support—when we fund a startup.” (Berks County)
- “Part-time farmers, unless they’re buying real estate, don’t need a lot of credit. They’re paying for it as they go. Get one tractor or a couple of greenhouses at a time. They have cash [from their other occupations] or get home equity loans.” (Burlington County)
- A supporting example came from a small farmer retired from his first career: “We are self-financing. I pay for things that I add. A lot of people are doing what I am doing and come to organic farming as a second career.” (Orange County)

¹⁷ This information was e-mailed to us by a director of one of the associations in November 2008. He noted that there was some overlap among the three types of loans.

- “The larger operations doing pure agriculture are having more difficulty than the smaller ones. This is because the smaller operations rely mostly on nonfarm income, and they are more stable this way. The repayment history proves to be better for people with nonfarm income.” (Fayette County)

6. Manufactured and Processed Inputs: Implements, Chemicals, and Seeds

Survey Findings

Three of our survey questions about the adequacy of farm production inputs concerned:

- “Farm chemicals (fertilizers and pesticides),”
- “Goods and services from implement dealers,” and
- “Goods and services from seed suppliers.”

Table 4.5: Distribution of Percentages of Surveyed Users of Three Inputs of Production (Agricultural Chemicals, Implements, and Seeds) Reporting in 2005 Their Ability to Get the Input When Needed “Always” or Either “Always” or “Most of the Time”**

Evaluation Category	Range (%)	Median Value	Number of Counties at the 66% or Better Mark	Number at the 75% or Better Mark
Farm chemicals: Percentage “always available”	34 to 81	63	6 of 15	3 of 15
Farm chemicals: Percentage “always” or “most of the time”	51 to 95	83	14 of 15	13 of 15
Goods & services from implement dealers: Percentage “always available”	43 to 77	58	4 of 15	1 of 15
Implement dealers: Percentage “always” or “most of the time”	69 to 95	83	All 15	12 of 15
Goods & services from seed suppliers: Percentage “always”	45 to 86	66	7 of 15	2 of 15
Seed suppliers: Percentage “always” or “most of the time”	70 to 97	89	All 15	12 of 15

*Range, median value, and percentage of counties with a value of at least 66% and percentage with at least an entry of 75%.

Table 4.5 and Figures 4.7 to 4.9 present the extent to which the input users in the samples (i.e., owner-operators and owners “with detailed information about how my farmland . . . is operated”) reported that their needs for these inputs had been met in 2005. In 13 of the 15 counties, 75% or more of the respondents indicated their needs for farm chemicals were met “always” or “most of the time” (Figure 4.7). If we lower the standard to 66%, the ratio is 14 of 15 counties (Table 4.4). “Goods and services from implement dealers” did a little better at the 66% mark—with all 15 counties qualifying. At the 75% standard there were 12 of 15 counties. The corresponding measure for “goods and services from seed dealers” was also 12 of 15. By comparison, in only two of the 15 counties did as many as 66% of the users report meeting their nonfamily labor needs “always” or “most of the time” (Table 4.2). And two out of 15 was the proportion also for seasonal labor.

Figure 4.7

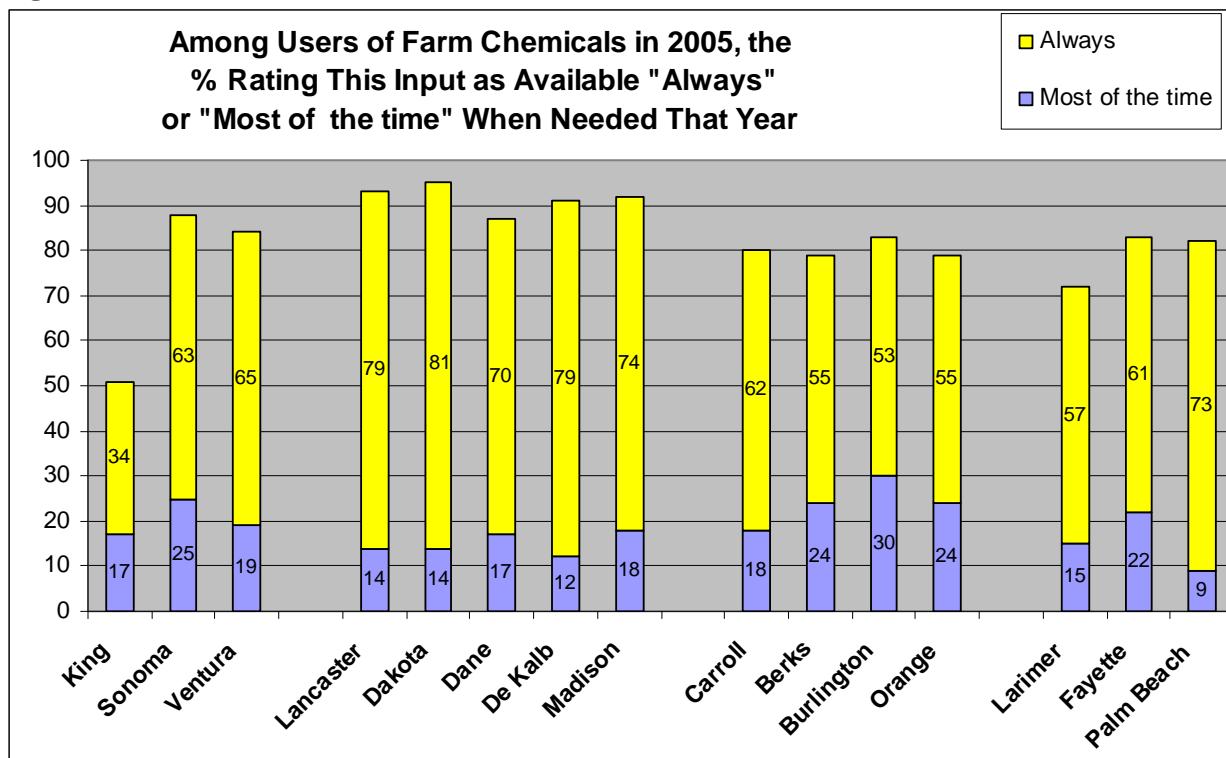


Figure 4.8

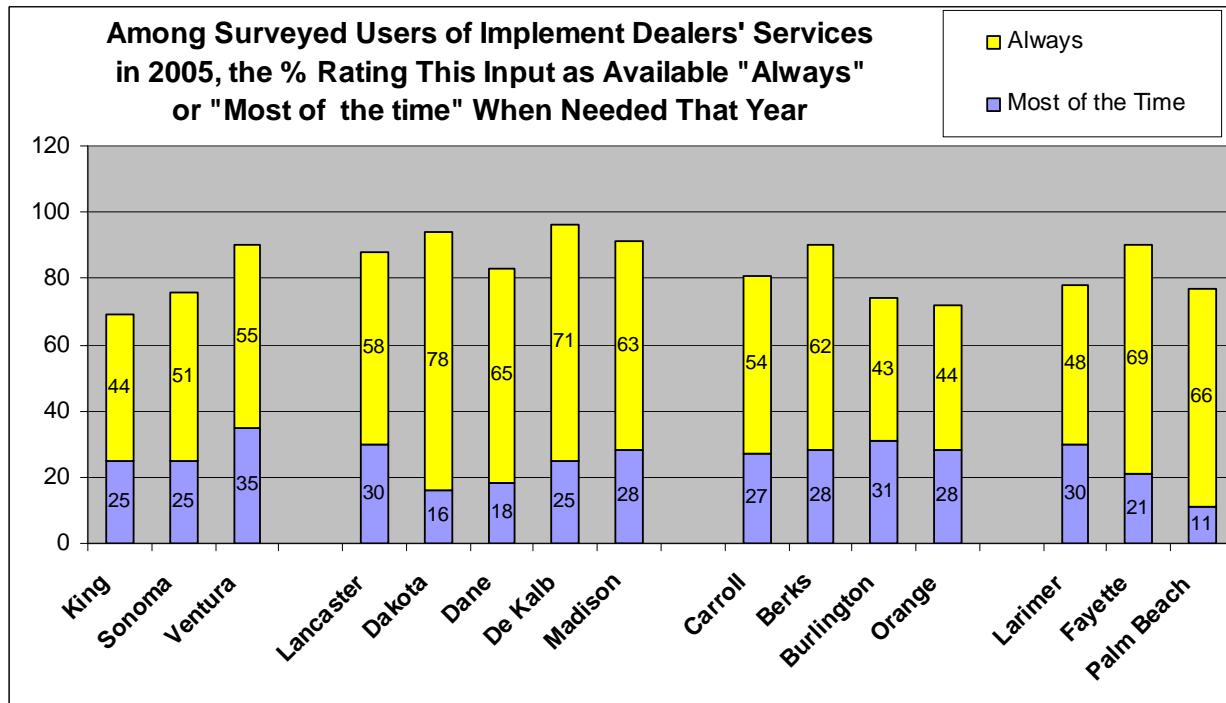
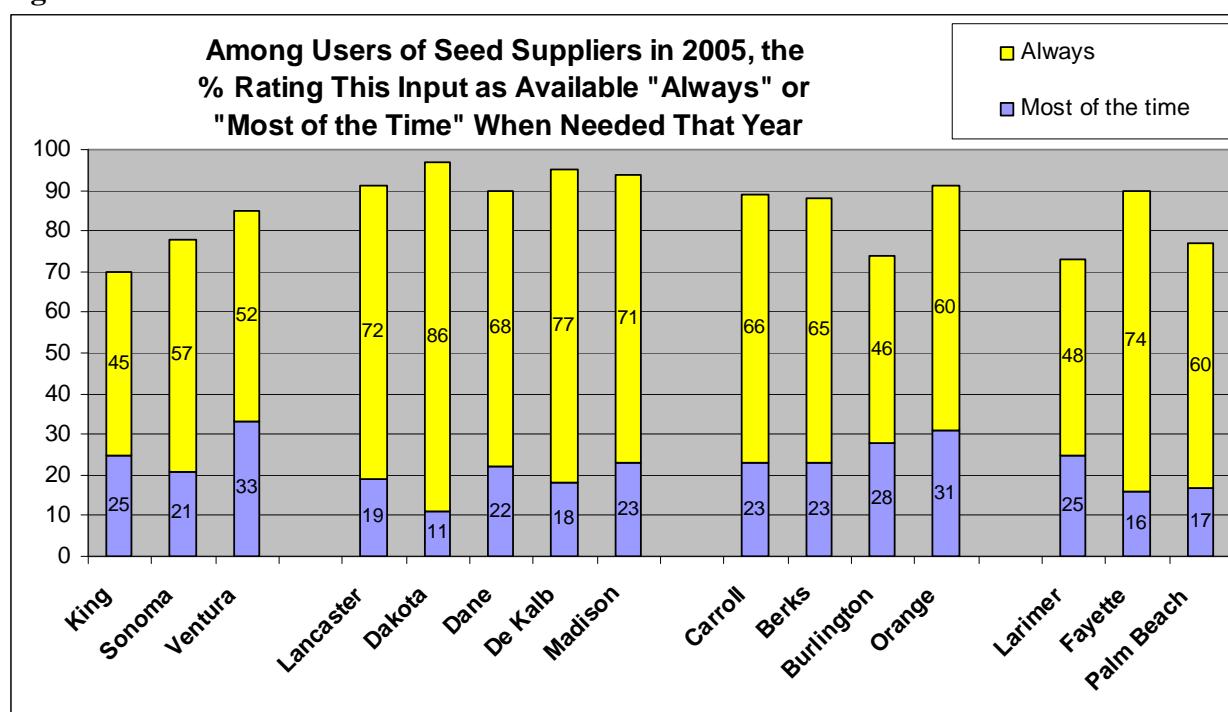


Figure 4.9



As these numbers indicate, just a few counties' samples included substantial percentages of unsatisfied users of any of the three types of manufactured or processed inputs. King County ranked lowest in all three figures—with combined “always” and “most of the time” entries of 51% (chemicals), 69% (implement dealers), and 70% (seed dealers). Larimer County was second-lowest in two figures—for chemicals and seeds.

Regression Findings

As discussed at the beginning of this chapter, we applied regression analysis to identify likely causes of operators' evaluations of the adequacy of production inputs. For chemicals and seeds, the analysis found that, the more years the respondents had been farmers or ranchers, the more likely they were to have their needs met at least “most of the time,” other things being equal (Table 4.3). For example, as many as 20 years of experience made a difference compared to respondents with fewer years. The underlying cause should *not* have been that more senior farmers had greater gross revenues; the analysis took into account differences in sales and found that years farmed still made significant, positive differences. With years of experience may come better contacts with suppliers and more knowledge about how to negotiate good terms of purchase and schedules for delivery.

For two kinds of inputs—implements and seeds—age made a difference. Other things being equal, older farmers—such as those at least 65 years old—were *less* likely to be satisfied with the supplies. Perhaps the older operators were less inclined to order supplies through the Internet, a source that several interviewed experts argued could offset the closure of nearby dealerships (see discussion below).

Gross sales were also significant predictors for two inputs. Other things being equal, operators with at least \$50,000 in sales were more much more likely to have their farm chemicals needs satisfied either “always” or “most of the time,” compared to respondents with lower gross revenues. The same relationship was found for seeds. Presumably, the larger producers tended to negotiate better purchase conditions or at least to command more attention from suppliers because their potential invoices were higher.

Another predictor was the operator’s extent of selling via wholesale outlets. The higher the operator’s percentage of total sales that was wholesale, the *more likely* the surveyed farmer was to be satisfied with their supplies of ag chemicals and seeds. Since wholesale buyers may also sell such farm inputs, they have a vested interest in seeing that their farmers are adequately supplied.

Also, the more acres in grains on the respondents’ owned land, the *more* likely they were to be pleased with services from implement and seed dealers. Since we took account of the relative importance of marketing outlets, the explanation for this relationship is probably not in the type of buyer. There may be something about grain production that lends itself to better supply conditions, such as the greater potential market because of the high number of producers. According to the 2002 Census of Agriculture (table 34), there were 348,590 farms producing corn for grain and 169,528, wheat, compared to 54,391 for all types of vegetables and 9,408 for potatoes.

Interview Findings

In our efforts to learn from interviews about manufactured and processed inputs of agricultural production, we were able to talk directly with local suppliers (as we did when speaking with local bankers about agricultural credit), as well as with other knowledgeable informants like extension educators and prominent farmers.

Overall Adequacy of Supply

By county: As the quotations below indicate, the supplies of these three types of production inputs were considered generally adequate. The sufficiency varied with, among other factors, the profitability and number of farms/ranches in the area’s ag sector. For example, King County’s dairy sector was not prospering in 2005–2006, while—despite the urbanization—Sonoma County’s grape industry was.¹⁸ And we received complaints about services available to King County’s dairy farmers, but not about Sonoma County’s vineyards. Similarly, revenues for Ventura County’s fruit sector were expanding,¹⁹ and the support services for it were reported to be good.

While the counties with bigger ag sectors (e.g., Palm Beach, Sonoma, and Ventura counties) seemed to have no problems, a theme common for most of the others was a decline in the number of separate local dealers, with negative consequences in some cases. Price benefits of competition were reduced, and farmers had to travel farther to purchase goods and interact with

¹⁸ From 2003 to 2007 the market value of Sonoma’s wine grape production grew from \$313.1 million to \$416.5 million (Agricultural Commissioner, Sonoma County, 2008).

¹⁹ Between 2003 and 2007, the value of Ventura’s fruit and nut crops increased from \$591.7 million to \$752.1 million (Agricultural Commissioner, Ventura County, 2008).

dealership staff, such as over repairs. However, as discussed later in this chapter, both suppliers and farmers took steps to adapt to the reality of fewer, geographically less accessible dealers.

- “No problems at all. Farmers have the world’s largest John Deere dealership.”
- “Dealers? No problems there. There is a big John Deere dealership and that is what I rely on.” (Palm Beach County)
- “Our service sector is good for the wine grape industry—whether it’s fuel, tractors, repairs, technical services, wine-barrel making.” A wholesaler for vegetables told us, “No problems I’ve heard about regarding the supply of seed or farm equipment or services. (Sonoma County)
- “There is plenty of support for strawberry and lemons. Everyone is getting what they need.” (Ventura County)
- “Fewer sources but no inadequacies.” “Services are as good as 10 years ago, [although there have been] some shift. Co-ops have bought out dealers, and there have been mergers.” (Madison County)
- “We have lost infrastructure. No slaughtering firms, no places for milk. Some support services are around, but competition is not there anymore.” “Machinery and equipment dealers are getting less and less.” “There are one or two chemical dealers.” (King County)
- “Yes, [there was a satisfactory supply of inputs] except for the fact that we are getting less competition among implement dealers. . . . Now there is beginning to be a shortage, so we are getting a monopoly.” “There isn’t a John Deere dealer in Lincoln; you lost that competitive edge. You used to be able to go around and shop on prices.” (Lancaster County)
- “Services are OK; no real problem.” “All inputs are available in Dane or in surrounding counties.” “[Choice of suppliers is] pretty much the same, just the number of dealers has decreased.” (Dane County)
- “The farmers would probably like a little more competition, but they get what they need [in agricultural chemicals].” “There are a lot fewer [chemical dealers than 10 years ago]. The more local, full-line dealers have consolidated. About four dealers have consolidated into two.” (Berks County)
- “Hard to think of an input not available locally.” “But with the continued elimination of implement dealers . . . the problem will be the locating of the input in a timely matter if it is needed at a critical time in the farming operation.” (DeKalb County)
- “We have one equipment dealer. Finches is the only one. But Hoobers [in Middletown, Delaware, about 100 miles away from the Carroll County seat], an International dealer, makes a Herculean effort to get over here and get combines and big tractors into here.” (Carroll County)
- “We’re OK with chemicals and fertilizers. They deliver to our farm.” “[If] the big suppliers don’t have them, you may have a problem. There are two suppliers. One is local. . . . The next alternative is two counties away. They’ll deliver, but not the next morning.” “There is not a single implement dealer in the county. But no problem because one John Deere dealer [from outside the county] delivers on Tuesday, and the second one on Wednesday. And we have UPS overnight delivery.” (Burlington County)
- “Producers can get what they need. There are still dealers here with chemicals, sprays, seeds, fertilizer, lime, and implements.” (Orange County)
- “This is not a problem in the county. There are less equipment dealers than in the past, but yet there is no problem. The proximity of Larimer County to Jackson County

(Walden area)—a big agricultural county—helps.” “Considering the whole area—Larimer, Boulder, and Weld—there is enough supply.”

- “Not a problem because they can just go to Scott or Woodford County. We are a small or rather urbanized county served by dealers in neighboring counties.” (Fayette County)

Repair Services

Although parts and other equipment supplies can be obtained from distant dealers, repair services may be problematic. The following quotations suggest that urban-edge farmers may be required to do more of their own repair work. Alternatively, their pool of needs may be sufficient to keep independent mechanics in business. However, as found in Larimer County with Fort Collins and other very popular places to work, the urban employment opportunities may be so attractive that too few people are willing to do agricultural mechanical work.

- “Some of those companies that work on tractors, they also work on big trucks. So there’s some overlap with other types of users besides farmers.” (Sonoma County)
- “Repair is pretty good, even though there are no dealerships. But service is not worse.” “The supply is adequate; there are more small machinery dealers, [but] no large machinery dealers in county.” “Small repairs can be done by someone coming out and doing the repairs on-site; but if it is a major problem on a large piece of equipment, it is really costly because they have to load it onto a semi-trailer and take it to one of the dealers in the surrounding communities.” (Lancaster County)
- “Farmers do most of their own maintenance.” (Madison County)
- “Repair and maintenance needs to be done by yourself.” “Larger farms . . . push our ability to service smaller farms. But most large farms do it themselves.” (Madison County)
- “[In a county without a single implement dealer] we are fortunate to have two independent mechanics that we can get quickly, especially for [hay] balers. I couldn’t be in business in hay without them. You can’t wait two hours, if the baler is down.” “I have a mechanic who comes on weekends and after hours to work on my many tractors and vehicles.” “I have a semi-retired friend who can do a lot of repair work.” (Burlington County)
- “There are not enough qualified mechanics, or they just switched to work in a different industry, like construction, where they are better paid. The problem is that the training programs for qualified mechanics are tough” “It’s harder to find good people. They work in computer jobs [found in the county or in suburban Denver]. There are no young people that want to get into the industry. They want high tech stuff and higher salary.” (Larimer County)

Adequacy for Smaller Farmers

The quotations given immediately below, and in the subsection farther below that, entitled “Adaptations by Suppliers,” suggest that in at least some counties dealers had already adjusted to the growth in smaller, part-time farmers. The selection of final products and parts for them seemed adequate. However, as in DeKalb County, small operators may have encountered higher unit costs (for lack of volume discounts) and longer waiting periods, as the dealers gave first priority to satisfying their larger buyers. Avoidance of these problems could occur, as in Larimer County, if the smaller farmers had collectively become the most important customers, or in King

County, where equipment dealers offered models suitable for both urban users and the smaller farmers.

- “No, there are enough dealers for all sizes.” “There is not a big problem with the service providers. The inputs are there for everybody, regardless of the size.” (Fayette County)
- “No problem for the smaller farmers.” “The market is changing. The big farmers buy big equipment, the small farmers buy small equipment [that can also be sold to non-farmers living on acreages].” (Dane County)
- “No inadequacies of inputs. But economies of scale favor larger farmers [in] pricing and timing of access to some of these [inputs] like credit, favorable prices for fertilizers, etc.” “They [smaller farmers] can purchase the inputs, but may not get the ‘volume’ discounts or may not get as fast service to get the job done as a larger operator. . . . The larger operations demand and get better service as the dealer cannot afford to lose the bigger business as easily as he can afford to lose a small operator.” (DeKalb County)
- “No, actually, the smaller farmers might have fewer problems than the bigger ones because the dealers have already adapted.” “Small farmers get good service; they predominate.” “Very important. Yes, they will help us stay in the business.” (Larimer County)
- “No, not worse for smaller farmers. Maybe somewhat easier, since large equipment is not needed on the really small farms, and equipment dealers have switched to more urban scale implements and tractors.” (King County)

Adaptations by Farmers

Mail, phone, and Internet orders: The following quotations suggest that, when local, readily accessible dealerships close down, operators have found at least three alternative channels for obtaining needed inputs—mailed, phoned, and Internet-generated orders—besides driving the extra distance to dealers out of county. However, in two counties—Lancaster and Larimer—we picked up some dissatisfaction with Internet sales—farmers worrying about quality and regretting the absence of direct contact with service personnel.

- “We mail-order a lot of seed. . . . In King County, most farmers go out of county for large quantities.” “Some animal operators are buying some supplements and vaccinations online.”
- “There are no local seed producers. We order from out of state. The most reasonable prices are provided by a seed company in Ohio.” (Sonoma County)
- “Customers drive outside county, order over the Internet, or use secondhand materials, such as from NAPA Auto Parts.” (Madison County)
- “People feel more comfortable going online and going farther [to next county] to get what they need in equipment. Taking time away from the farm for this stuff was hard 25 years ago because there was so much livestock on the farm.” (Dakota County)
- “Implements are OK. If need be, [you can] phone outside the local area or use the Internet.” (Dane County)
- “I use the Internet. I get pretty much anything—seeds, seedlings. I do almost all my seed buying over the Internet.” “We do a lot of business over the cell phone right here in the shop. You get it in 24 hours if you call in by 10 AM. If you want a guarantee by 10 AM the next morning, you pay them an extra 12 dollars.” (Orange County)
- “A lot buy online. . . . We have very computer literate farmers, very adjusted to the use of technologies.” “Yes, many buy online or through a catalog.” (Sonoma County)

- “Some place orders online. Older farmer will usually leave it up to the son . . . to deal with the online computer work.” “Farmers are skeptical. There are stories of getting burned, and they are too old and don’t won’t to mess with computers.” “Farmers see Internet purchasing as risky, illegal for chemicals; they may get a can of junk.” (Lancaster County)
- “They would go to Weld County [just to the east of Larimer] or buy online.” “Yes, for chemicals they use the Internet, but the problem is that they do not get warranties or services.” (Larimer County)

Farmers do their own repair and/or set up their own small supply services:

- “Many farmers just try to do it themselves because there are no dealers left in the county. Diesel mechanics for implements are less, and mobile welders are less to none.” (Lancaster County)
- “They [the dealer] offer service clinics. They also offer training for small groups when they buy the same equipment. The clinics are designed to make them aware of everything the machine can do and safety. They also provide financial incentives to those who come to these meetings—usually discounts on parts.” (Dane County)
- “Most farmers do maintenance themselves, although dealers will come out to the farm.” (Madison County)
- “My husband . . . does 90% of the equipment repair. . . . We have two neighbors who help us out. It’s out of the question to send it to a dealership because of their high rates and lack of competence.” (Orange County)
- “Farmers do their own repairs. They kind of learn it. I teach them. Newer stuff is better, but it takes better technicians to work on it today. It’s all computerized; you need laptop computer to work on them. Never heard of a car or truck dealership going into this business [servicing agricultural equipment] as a sideline.” (Burlington County)
- “Mennonite farmers will set up a small dealership on their farm with chemicals and seeds. They are not equipped to deal with fertilizers.” (Berks County)
- “[Dealership] companies come back to me and say that there is not going to be any mainline equipment dealer [and therefore wanted him to be a local distributor]. I added shelves to my basement to stock . . . parts. I started to interact with farmers, and with word of mouth, customers came. And I could help them with my knowledge of farming.” (Orange County)

Patronize dealers in adjoining or nearby counties:

- “In Seward County [the first county to the west], there are three implement dealers: International, Allison, and John Deere.” (Lancaster County)
- The industry has changed a lot in the last 10 to 15 years. There used to be a John Deere dealer every 10 to 15 miles. Since then six Deere dealers have gone out of business, and the remaining dealers have absorbed their customers. Today their service trucks service farms that are as much as 50 miles away because they are the closest Deere dealer.” (Dane County)
- “Farmers may have to travel a bit, but within a decent distance.” (Carroll County)
- “[If an input is not available locally] farmers go to Weld County [a major agricultural county just to the east] or buy online.” (Larimer County)

- “Yes, there is no problem. The idea is that even if they are not in Fayette County the farmers can just go to Scott County [northwest] or to Bourbon [east] or Woodford County [west], and they can get what they need.”

Adaptations by Suppliers

By 2006 or 2007 some of the suppliers who survived urbanization and mergers had developed the sales staff and delivery capacity to serve multicounty (or regional) clienteles, while others had stayed in the studied county, continuing to serve full-time farmers but staying financially healthy by serving the growing numbers of urban dwellers (who needed small tractors, lawn fertilizer, etc.) and/or the smaller, part-time operators.

- “Our market has changed; we used to be just three counties, but now we are selling to a much broader geographic trade area. The Internet is expanding [our] base of customers.” (DeKalb County)
- “The wine grape industry has an easier time because of the volume of business that they provide. But for some [agricultural] industries, it has decreased to the point that we have more regionally operated service businesses, such as in the livestock and dairy industry.” (Sonoma County)
- “Dealers have closed, but they have done some things like delivering parts. Now you can get online and check all your parts [in their catalog], and they will deliver them.” “There are drop-off boxes. You call in the order and drop off at the box, so the equipment is serviced out of other places. They have field crews with zones to work. There are also parts runners.” (Lancaster County)
- “The [relocating] companies do not want to lose their customers, and they try to adapt. Recently, they started developing a route system. They go in certain areas at certain times of the week or month, and they serve several farmers. They actually deliver at the door. They wait until several orders are done, and then they deliver.” (Fayette County)
- “Thousands of acres have been taken out of production and into development. This urbanization has changed my business. I sell many lawn and garden consumer products, large lawn tractors, etc. The lawn and garden customers are just as important as the farmers who buy bigger, more expensive equipment.” (Dane County)
- “If we served primarily the farming community, we would not be here long because farms are closing. We lose 10 to 15 farms every year and start only one or two every year. And the ones that start up last an average of two to three years.” (Orange County)
- “We used to be all ag business. Then, about 18 years ago, we opened another store only for gardening—small equipment suited for lawns and gardens and other supplies. However, about 10 years ago there were clear signs of urban development and as a consequence, we merged the two stores (the machinery with the gardening one) and moved to a new building. It is worthwhile to note that most of my profits come from gardening.” (Fayette County)
- “We have our own garden center. . . . I saw a real niche to serve landscapers—a lot of them. I put into play a procedure for them, a regular program for them [and] that end of the business has grown four times. . . . My main objective is to do all these extra things so that we can still be here for the farmers. If we had to depend on farm sales only, we would not be here.” (Burlington County)
- “Now we sell for the small producers, even gardening supplies. There are many people that produce, at small scale, sheep, pigs, and llamas, buffalo herds.” “Small operations—

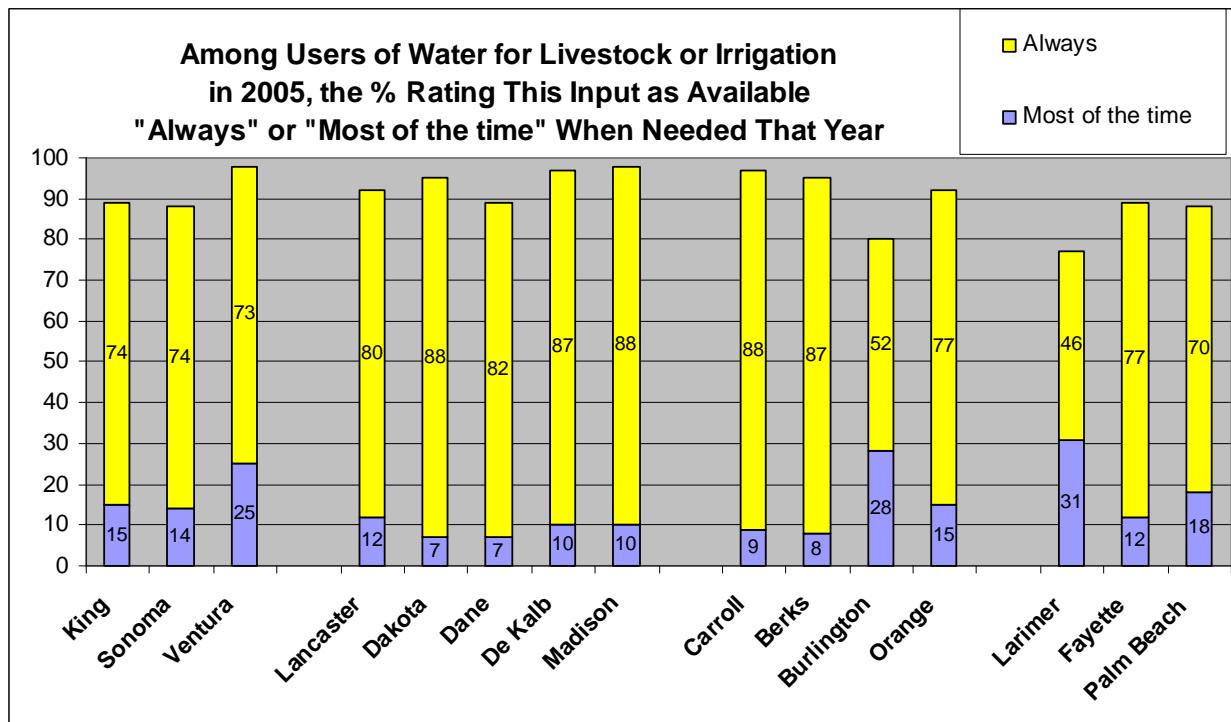
this is our business right now. We turned our focus on small operations in a three-state area five years ago." "Now the trend is to sell smaller tractors because of the hobby farms/small acreage farmers. These people want the lifestyle, but they do not farm for a living. They come out and buy land, buy used tractors or even small new ones. They might be doctors or lawyers and just do a little farming in the weekend." (Larimer County)

- See the subsection above, "Repair Services," for such adaptations as installing drop boxes where equipment can be picked up, serviced, and returned.

7. Water for Livestock or Irrigation

Figure 4.10 indicates that, for 2005, the supply of water for livestock and crop irrigation was considered to be good in almost every studied county. In nine counties at least 75% of the users reported having their water needs met "always," while the combined percentage of "always" and "most of the time" ranged from 77% (Larimer County) to 98% (Sonoma and Madison counties), with that measure's median value being 89% (Table 4.4).

Figure 4.10



The lowest entries of both levels of satisfaction measures were for Larimer and Burlington counties. In interviews for both counties we found the same concern: urban users were competing with farmers for a limited supply of water. In Larimer County it looked as though the nonfarmer users of water were clearly winning. In Burlington County there was the beginning of a rationing system that might protect an adequate share of the county's relatively shallow aquifer for agriculture.

Adequacy of Supply in Larimer and Burlington Counties

- “The land available for agriculture has diminished. The price of the land climbed so high, and the price of water as well. I consider actually the water problems even worse than the land issues.” “In 1970 for instance, we had 120,000 acres of irrigated agricultural land. Now, there are 70,000 or less [58,831 acres, according to the 2002 Census of Agriculture]. This is because in most years the cities have bought up more water and then leased some of this back to farmers. However, when there is a drought, then there is not much water available, and there are much less acres irrigated.” “When people buy small, broken-up farms, they almost never get water. Without the water there is no farm. This area has to be irrigated. The water is worth more than the land, and the water has to be tied to the land. They sell their water rights separately. Buyers can’t afford both. Even if they can, the [irrigation] ditches may not be able to get their water to them, because so much ‘upstream’ land is no longer farmed.” (Larimer County)
- “We are concerned about the supply of water for agriculture because we have a shallow aquifer. . . . [Urban users might cause] it to be overpumped and depress the water table in surrounding [agricultural] areas.” “In northern New Jersey, farmers are deprived of water they need because residential users claim it. I think that it will come to a head here.” (Burlington County)

Adjustments to Scarcity of Water

By farmers: “If you own shares in the North Poudre [water] system, and your allocation is four acre feet. You’ll get it, but you may need more and won’t get it. Way back then, you might have had six feet. They [the farmers] may have changed their cropping sequence to adjust to the reduced availability of water—to have lower water demand crops during the dry years. Not plant as much corn and go to sorghum.” (Larimer County)

By local government:

- Sonoma’s county seat, Santa Rosa, developed a system of pipes to deliver treated wastewater to farms that irrigate: “Yeah, we’re fortunate because we have reclaimed wastewater from the City of Santa Rosa via an irrigation system that is networked. We’re able to use that. Also we have a high water table. They don’t have a groundwater ordinance in yet. But that will come. We’re fortunate.” “We already have subdivisions that are using recycled waste water for landscaping. The whole neighborhood is plumbed for that use of wastewater.” (Sonoma County)
- “Following the enactment of state authorizing legislation, the county designated in 2004 an agriculturally important, multi-township area in the northwestern part of the county as a “receiving area,” where farmers may qualify for higher [water] usage amounts. Outside that area, farmers should not be able to increase their withdrawals: “The allocation formula in this receiving area is: 40% for residential, 50% for agriculture, and 10% leeway.” (Burlington County)

Adjustments to Urbanization’s Tendency to Decrease Supplies of Inputs of Production

In much of this chapter, we reported on the adjustments that farmers, suppliers, or (regarding water) local governments have made so that agriculture can receive adequate inputs of production despite the competition from nonfarm users and other effects of urbanization. As

shown in Figures 4.1 to 4.10, user satisfaction levels were generally high. Helping to sustain them have probably been adaptations, such as:

- Farmers complying only superficially with immigration regulations, and enforcement personnel not bothering to monitor individual farms, preferring to raid—if at all—businesses with large numbers of migrants in one location, like a meatpacking plant.²⁰
- Some very profitable sectors, like wine grapes and thoroughbred horses, encouraging young people or experienced ag workers to acquire the skills to become farm *managers* (because they could not afford to buy the land to become owner-operators).
- Banks and other suppliers finding that there was considerable money to be made by providing for the needs of smaller farmers, including those part-timers whom interviewed agribusiness managers called “hobby farmers.”
- Smaller farmers using income or savings from their main occupations or former careers to finance much of their agricultural operations.
- Farmers funding their operations by borrowing on the basis of the rising value of their land for residential or estate use or by simply selling high-priced farm land in one location and moving their operation to an area with lower per-acre prices.
- Operators using mail, phone, and Internet orders to compensate for the loss of nearby dealerships.
- Suppliers adjusting to their sectors’ business consolidations and related diminished density of stores by increasing the number, geographic scope, and speed of delivery services.
- Farmers learning to do more of their own equipment and machinery repairs.
- Livestock farmers mastering diagnostic tests and other procedures to keep their animals healthy.
- Crop operators changing their crop mix (e.g., switching from corn to sorghum) to adapt to less reliable supplies of irrigation water.
- Local governments using their expenditure and regulatory powers to help farmers in their competition with urban users for water.

It seems plausible that most of these adjustments can continue to be helpful. A potentially very serious exception, however, is seasonal labor. As discussed early in this chapter, many vegetable, fruit, and livestock products need hand labor. For some of them, mechanical replacements are being worked on or, though developed, await broader farmer acceptance (Ferguson and others, no date; Goldfarb, 2008). But for considerable more time farm laborers’ inputs will likely remain essential. Political pressures are currently strong to curtail the inflow of undocumented workers. Needed is an effective guest worker program.

²⁰ As of the end of our interviews in the 15 counties in 2006 or 2007, no raids by the U.S. Immigration and Customs Enforcement agency on farms in our counties were reported.