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Regional Views on the Role of Immigrant Labor on U.S. and Southern Dairies

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Although immigration is a controversial issue, it is also of major importance to the United States and to agriculture. Immigration policy has been discussed in the recent presidential debates and will likely be debated again in Congress at some point in the near future. Agricultural producer organizations, commodity associations, and lobbying groups have been at the forefront of this issue for many years. Our profession certainly has a role to play by informing constituent groups and the public with objective analytical results.

Immigrant labor is an important component of many, if not most, U.S. agricultural enterprises. The Current Population Survey estimates that in 2010, 57.2% of the agricultural hired labor force was foreign-born (U.S. Census Bureau, 2010). Approximately 62% of those foreign employees worked in crop production, while the remainder worked in livestock operations (U.S. Department of Agriculture—Economic Research Service, 2012). Recent evidence suggests the role of immigrant labor on U.S. dairies is significant. In Wisconsin, for example, it was estimated that immigrant labor accounted for 40% of the dairy farm workforce in 2008, compared with almost no immigrant labor before 2000 (Harrison, Lloyd, and O'Kane, 2009). Immigrant labor is particularly important to dairies in the Southwest. Our results indicate that those farms employ many more foreign workers than farms in other regions of the country.

With increased enforcement of U.S. immigration regulations, lack of congressional action to resolve immigration policy issues, and economic recovery of the U.S. economy, concerns have been raised about the prospects of reduced labor availability in many sectors of agriculture. Dairy farming is no exception.

Methodology

The purpose of this study was to assess the role and importance of hired labor on U.S. dairy farms in general, and immigrant labor in particular. The motivation originated from labor shortages reported on dairy farms in 2006 and 2007. The study was designed to assess how important immigrant labor was to dairy farms, farm worker incomes and benefits, the types of documentation utilized to verify employment status, employee turnover, the origin of immigrant workers, and how prevalent labor shortages were in the industry.

A national survey of 5,005 dairy farmers was conducted May to June 2008 to determine the relative importance of immigrant labor to individual dairy farms. Responses were received from 47 states in seven designated regions. The regional results of the survey were embargoed until June 2010 and are therefore being presented here for the first time to any public audience. The regions consisted of the states designated in Figure 1.

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Figure 1. Dairy Farm Survey Regions

A random sample of 715 dairy farms was taken from each region. A total of 2,071 questionnaires were returned for a response rate of 41.4%. Of those questionnaires that were returned, 727 were not used in the analysis. Of the surveys not used:

306 were from respondents who were no longer involved in dairy farming;
297 were from operations with less than 50 cows during 2008 (These surveys were excluded because, as a group, these farms account for a small percentage of milk production (6.7%) and rarely utilize any hired or immigrant labor, which was the focus of this study); and
124 did not provide 2008 herd size, making them unusable for consistent economic analysis.

Consequently, there were 1,344 useable surveys included in the analysis. For some questions or parts of questions, answers were incomplete, so a lower number of respondents were reported. The survey did not inquire about the legal status of immigrant dairy farm workers.

The Structure of Dairy Farms

The sample of 1,344 dairies indicated that each farm, on average, had 297 milk cows. Herd size varied substantially across regions, however. California had the largest average herd size, with nearly 1,080 cows, while the Southwest was next largest with 933 cows. The Northwest was next with an average of 653 cows. The Northeast and Southeast reported 264 and 254 cows per farm, respectively. The Midwest and the North had the fewest number of cows per farm with 173 and 149 head, respectively (Table 1).

Average milk production varied by region and farm size. While survey results for average

Table 1. Average Herd Size and Milk Production in U.S. Dairy Farms by Region, 2008

	Herd Size (number of cows)	Milk Production (million lbs)
U.S. average	297	6.4
California	1,080	25.1
Southwest	933	20.4
Northwest	653	14.7
Midwest	173	3.6
North	149	3.2
Northeast	264	5.7
Southeast	254	4.4

Source: Center for North American Studies.
Note: (n = 1,344).

Table 2. Percentage of Household Income from Dairy Operators, 2007

	100% from Dairy Operation (%)	75 to 99% from Dairy Operation (%)	Less than 75% from Dairy Operation (%)
U.S. average	41.1	36.4	22.5
California	51.0	28.4	20.6
Southwest	40.7	33.4	26.0
Northwest	53.4	31.7	14.9
Midwest	34.4	37.2	28.4
North	39.9	39.9	25.3
Northeast	45.4	39.8	14.8
Southeast	37.0	40.0	22.9

Source: Center for North American Studies.
Note: (n = 1,329).

milk production per farm was 6.4 million pounds, the regional variation was significant. As with herd size, California exhibited the most average output per farm, 25.1 million pounds. Farms in the Southwest averaged 20.4 million pounds, while average milk production for the Northwest was 14.7 million pounds. The Northeast averaged 5.7 million pounds and the Southeast 4.4 million pounds. The Midwest and North averages were 3.6 and 3.2 million pounds, respectively.

On average, 78% of the farms surveyed received at least 75% of their income from the dairy operation (Table 2). There were slight variations by region, however. The Northwest and the Northeast were the most dependent on dairy, with 85% of the farms reporting that they received at least 75% of their income from dairy farming. Midwest dairy farmers were least dependent on dairying for income, with 28% indicating that less than 75% of income was from the dairy. About 25% of the farms in the Southwest, Southeast, and North reported less than three-fourths of their income was from dairy farming.

Employee Characteristics, Wages and Labor Issues

Average employment per dairy was 5.6 people, with four full-time employees and 1.6 part-time equivalent workers (Table 3). Major differences in employment occurred across regions. The Southwest, California, and the Northwest tended to use the most labor per farm, with dairies in those regions employing 11, 10, and 9 full-time workers, respectively. Part-time employees represented minor contributions to the dairy farm in those regions, ranging from 0.7 to 1.5 workers per farm. Dairies in the Southeast and Northeast employed 5.5 workers per dairy, while those in the North and Midwest used just over

Table 3. Dairy Operations: Labor and Wages, 2008

	Average Number of Full-Time	Average Number of Part-Time	Average Number of U.S.-Born	Average Number of Foreign-Born	Average Hourly Wage
U.S. average	4.0	1.6	3.2	2.0	$9.97
California	9.8	0.7	1.5	8.9	10.61
Southwest	11.0	1.0	2.6	8.7	9.76
Northwest	8.7	1.5	2.8	6.9	11.09
Midwest	2.7	1.5	3.2	0.7	9.67
North	2.6	1.8	3.0	0.9	9.54
Northeast	3.5	2.0	3.9	1.0	9.35
Southeast	4.1	1.4	3.5	1.7	9.32

Source: Center for North American Studies.
Note: (n = 1,107) for Full-Time, Part-Time; (n = 1,073) for U.S.-born, Foreign-born; (n = 838) for wages.

four. The role of part-time labor in these latter four regions was also more important, ranging from 1.4 (Southeast) to two (Northeast).

Employee characteristics and wages tended to vary a great degree by region and origin of the employee. Nationally, dairies employed an average of 3.2 domestic workers and two foreign workers (Table 3). About 47% of all dairies in the survey reported utilization of immigrant labor. What is more important, however, is that those same farms accounted for 62% of milk production. Dairies in California and the Southwest employed the most foreign workers, nine per farm, along with 1.5 and 2.6 domestic workers, respectively. Northwestern dairies employed seven foreign and three domestic workers per farm. The other regions employed the fewest foreign workers, ranging from 0.7 in the Midwest to 1.7 in the Southeast. Among all foreign employees, 98% were from Mexico, with other reported origins of Central and South America.

The average wage paid by dairies in the survey was $9.97/hour, but this wage ranged from a low of $9.32 in the Southeast to a high of $11.09 in the Northwest (Table 3). Wages were highest in the Northwest, California, and the Southwest, averaging $10.50/hour. They were lowest in the other four regions with an average of $9.47/hour.

What may be most revealing when comparing wages across regions and by origin of employees is that these results seem to contradict anecdotal evidence that foreign workers are paid less than domestic workers, creating the incentive to prefer foreign over domestic employees. The survey results clearly indicate that dairies with more foreign employees tend to pay higher wages than dairies with fewer foreign employees.

Non-wage benefits were also important factors used by dairy farms to attract and retain employees (Table 4). Paid vacation time was the most widely used non-wage benefit with 47% of the dairies using some form of vacation incentive. Housing or housing allowance was provided by 44% of the farms, while health insurance was provided by 28%. Other important non-wage benefits included providing food (24%) and worker incentive pay (19%).

Vacation time was provided by 75% of California dairies in the survey, compared with 56% in the Northwest and 49% in the Southwest. Within the other regions, paid vacation provided by dairies ranged from a low of 23% in the North to 43% in the Southeast. Nearly 48% of California dairy farms provided health insurance, compared with only 16% for the Southwest and 27% in the Northwest. Among other regions, the lowest was 18%, in the North, and the highest was 29%, in the Midwest. There was minimal variance in the provision of food to employees, ranging from 21% in the North to 26% in the Southeast. Incentive pay was lowest in the North at 10%, which was well below the national average of 19% and the regional high of 27% in California.

Several interesting disparities emerged across regions among dairies that did not pay any

Table 4. Non-Wage Incentives Provided by Dairy Operations

	Vacation (%)	Housing/ Allowance (%)	Health Insurance (%)	Staple Foods (%)	Incentive Pay (%)	None Offered (%)
U.S. average	45.6	44.3	27.7	23.8	18.6	27.9
California	74.5	58.3	47.7	26.0	26.5	7.2
Southwest	49.4	58.4	16.0	22.1	19.2	21.9
Northwest	55.5	46.2	26.7	24.8	24.7	20.6
Midwest	34.1	34.1	28.6	22.0	19.5	36.0
North	22.7	29.5	18.2	21.2	9.9	48.7
Northeast	30.7	34.5	21.8	25.2	12.1	38.7
Southeast	43.2	49.8	22.5	26.3	15.8	24.1

Source: Center for North American Studies.

Notes: (n = 1,203). Respondents were allowed to select more than one incentive option.

non-wage benefits. First, only 7% of California dairies did not provide any non-wage benefits, while 49% of dairies in the North and 39% in the Northeast did not provide similar benefits. Nationally, 28% of dairies did not provide any non-wage benefits. Second, one-fifth to one-quarter of the dairies in the Northwest, Southwest, and Southeast did not provide non-wage benefits. Finally, 36% of Midwest dairies did not provide any type of non-wage benefits. What may be most important about these results is that nearly three-fourths of all surveyed dairy farms provided some type of non-wage benefit, with 93% of California dairies leading in this regard.

It is important to compare some of these results to the results of questions about labor shortages during the same time frame (2007–2009). Labor shortages among California dairies were the lowest among all the regions, 13%, compared with the national average of 26% (Table 5). The Southwest experienced labor shortages of 29%, whereas the Northwest and North were slightly less than one-quarter. The Midwest, Northeast, and Southeast all experienced shortages of 33% or more. California dairy farmers also expected the lowest labor shortages, 15%, compared with the national average expectation of 28%. The Northeast, Southwest, and Southeast expected the largest labor shortages, ranging from 36% to 42%.

Turnover rates were also reported. Although the national average was 11.9%, the range was from a high of 17.3% in the Southeast to a low of 9.4% in the Midwest (Table 5). The Northwest also had a relatively high turnover rate reported at 15.8%. The other regions reported turnover rates ranging from 10.8% (Southwest) to 11.7% (North).

High rates of turnover caused some problems for dairies as well. Lower production, cow and calf loss, and reduced herd and feed efficiency were among the most commonly reported results attributed to labor turnover (Table 6). In the Southeast, for example, these factors were reported to have about a 1% negative influence on the dairy operation. In California, the Southwest, and the Northwest, the negative impacts were, on average, about 2% and in some cases, above 2.5% (Southwest calf loss). The largest negative impacts of turnover on herd health were reported in California, the Southwest, and the Northwest, averaging slightly more than 2%. The largest negative effects on reduced feed efficiency were also reported in these same regions.

Dairy farms had widely varied responses about how to mitigate these labor losses and the impacts of dairy operations. Higher wages, increased automation, reduced output, going out of business, and relocating were among the most commonly reported. Slightly more than one-half of farms in the Southwest and Northwest believed that raising wages would attract more labor, compared with 43% of farms in California (Table 7). About one-third of farms in the Southeast and Midwest thought higher wages would succeed in mitigating labor shortages, while only one-quarter in the North and Northeast agreed. An average of one-fifth

Table 5. Shortages and Turnover Rates Reported by Dairies

	Shortage Experienced Previous Two Years (%)	Shortage Expected During 2009 (%)	Turnover Rate (%)
U.S. average	26.4	28.2	11.9
California	13.2	15.2	11.4
Southwest	29.2	36.5	10.8
Northwest	22.2	22.0	15.8
Midwest	33.3	29.7	9.4
North	24.0	27.0	11.7
Northeast	38.5	41.9	11.2
Southeast	37.0	36.3	17.3

Source: Center for North American Studies.

Notes: (n = 245) for shortage experienced; (n = 220) for shortage expected; (n = 1,078) for turnover rate. Shortage data has relatively low n due to only about 20% of respondents either experienced or expected shortages.

Table 6. Impacts of Turnover on Dairy Operations

	Milk Production (%)	Calf Loss (%)	Cow Death Loss (%)	Herd Health (%)	Feed Efficiency (%)
U.S. average	−1.4	1.4	1.2	−1.4	−1.2
California	−2.0	1.9	1.8	−2.1	−1.8
Southwest	−1.9	2.6	2.4	−2.3	−1.8
Northwest	−1.9	1.9	1.6	−2.0	−1.4
Midwest	−0.9	0.5	0.5	−0.7	−0.4
North	−1.0	0.9	0.6	−0.8	−0.8
Northeast	−0.9	0.5	0.6	−0.7	−1.0
Southeast	−1.3	1.1	1.0	−1.1	−1.2

Source: Center for North American Studies.
Note: (n = 1,048 to –1,055 depending on impact option).

thought that increased automation was a viable option to consider when offsetting labor losses, with little regional variation.

On average, 11% of farms believed reducing output would mitigate labor losses, but this varied substantially across regions. In California, the Northeast, the Midwest, and the North, these views were 6, 9, 10, and 12%, respectively. In the Southwest and Southeast, they were about 17%. It appears that simply reducing milk production is a much less viable option in parts of the South compared with other regions.

Ceasing operations was considered an alternative by 6.5% of dairy farms nationally if labor shortages continued. This also varied a lot by region. California, the Midwest, and the North appeared better able to withstand labor shortages than other regions with going out of business reported by only 4.5, 2.6 and 4.6%, respectively, by farms surveyed. The Southwest and Northeast reported 10.4 and 9.0%, respectively, while the Southeast reported 14.9%, a figure more than double the national average. It appears clear that dairies in the Southeast are most vulnerable to labor shortages and least able to adopt viable options to mitigate their impacts. Whether this is due to small farm size, debt, or lack of scale economies was unclear.

Relocation to another region or state was considered a viable option by only 3% of the farms surveyed. This varied somewhat by region with 7% in the Southwest and only 0.5% in the North considering it viable. The other regions were within this range.

When dairy farmers were asked about what level of wage increase might be required to attract labor, the national average was 5.8%, with some variation across regions. In California, the Southwest, and Northwest, the wage increases were reported to be 5.9, 8.4, and 7.8%,

Table 7. Actions to Mitigate Labor Shortages Considered by Dairies

	Higher Wages (%)	Increase Automation (%)	Reduce Operations (%)	Cease Operations (%)	Relocate (%)
U.S. average	37.8	19.3	11.0	6.5	3.4
California	42.6	20.1	6.0	4.5	5.8
Southwest	50.6	17.3	17.4	10.4	7.1
Northwest	52.9	23.9	13.0	6.3	3.9
Midwest	32.2	17.3	9.6	2.6	1.2
North	25.7	17.1	11.7	4.6	0.5
Northeast	27.5	20.1	9.0	9.0	2.6
Southeast	36.1	21.3	17.1	14.9	2.1

Source: Center for North American Studies.
(n = 1,178–1,257) depending on option.

Table 8. Wage Increase Required to Attract Additional Workers to Dairies if Labor Shortages Occur

	Wage Increase Required (%)
U.S. average	5.8
California	5.9
Southwest	8.4
Northwest	7.8
Midwest	4.2
North	4.5
Northeast	4.4
Southeast	6.7

Source: Center for North American Studies.
Note: (n = 1,076).

respectively (Table 8). These are among the highest wage increases reported and these same regions utilize the largest number of foreign employees in the operations. The lowest wage increases were for the Northeast, the Midwest, and the North, all near 4.5% or below. The Southeast reported that a 6.7% wage increase was needed to attract labor. It appears that the dairies utilizing the most foreign labor are those who are inclined to raise wages the most to attract labor to the farm.

Worker Documentation and Enforcement

Concerns about proper and valid worker documentation were important to most dairy operations. Nationally, the social security card or a green card (Form I–90) were the dominant forms of documentation reported, which was consistent across some regions as well (Table 9). Employer retention of social security cards was most prevalent in California, the Southwest, and the Northwest and was least prevalent in other regions. The retention of the green card was highly prevalent in California, the Southwest, and the Northwest where the utilization of foreign employees dominated.

The degree of confidence farms had in these documents was also reported. Most regions had a high to moderate level of confidence in the documents that they use to verify residency for foreign employees. Nationally, however, 39% of dairy farms surveyed had low or no confidence in the documents (Table 10). The Midwest and Northern dairies were the most confident (49% and 47%, respectively), followed by California and the Northwest with 42% and 41%, respectively. The least confident regions were the Northeast and the Southeast.

There were also concerns about being scrutinized and raided by Immigration and Customs Enforcement. Dairy farms in the Southwest expressed the most concern, with 65% of the respondents indicating moderate to very high concerns (Table 11). Farms in the North, Midwest, and Southeast had the least concern, with about two-thirds of the dairies reporting low or no concern about raids. Between 45% and 55% of the dairies in California and the Northwest expressed low or no concern about raids related to documentation.

Conclusions and Implications

Immigrant labor is important to U.S. dairy farms. Hired foreign workers represent 47% of

Table 9. Employee Records Retained by Dairies

	Social Security Card (%)	Green Card (%)	Visa (%)	Birth Certificate (%)
U.S. average	53.1	28.2	8.5	6.8
California	83.5	60.8	15.8	7.4
Southwest	59.6	39.1	14.4	5.5
Northwest	70.0	44.3	12.2	10.9
Midwest	32.1	6.0	2.8	8.2
North	34.6	8.4	2.2	4.2
Northeast	34.3	9.0	4.0	6.3
Southeast	44.4	11.1	3.7	4.7

Source: Center for North American Studies.
Notes: (n = 1,225). Respondents were allowed to select more than one document retention option.

Table 10. Confidence Level of Dairies Regarding Validity of Immigration Documentation

	High or Very High (%)	Moderate (%)	Low or None (%)
U.S. average	40.1	22.0	38.6
California	41.8	25.8	32.4
Southwest	32.9	28.7	38.4
Northwest	41.1	30.8	28.0
Midwest	48.5	20.4	31.2
North	46.6	17.5	35.9
Northeast	27.3	1.1	71.5
Southeast	34.2	27.2	38.6

Source: Center for North American Studies.
Note: (n = 1,225).

the hired labor on dairies, while those same farms produce and account for 62% of the milk supply. Most of the immigrant labor on dairy farms is located on farms in California and the western United States, but farms in the Southeast, Northeast, and Midwest also employ foreign-born workers as well. About 98% of immigrant labor on dairy farms is from Mexico. Based on survey results, dairy farm employees were paid an average wage of $9.97/hour, with a range from $9.32 in the Southeast to $11.09 in the Northwest. These results suggest that farms employing a larger proportion of immigrant labor do not necessarily pay lower wages than those employing less immigrant labor. Nearly one-half of all farms provided some type of non-wage benefit to workers such as vacation, health insurance, or incentive pay. A higher proportion of farms in California, the Southwest, and the Northwest provided non-wage benefits than dairies in other regions.

Labor turnover and labor loss among dairy farms are issues as well. Turnover ranged from 9.4% in the Midwest to 17.3% in the Southeast. Shortages of labor on surveyed dairy farms were also experienced, from 13% in California to 39% in the Northeast, and the shortages were expected to increase in the future. Labor shortages, coupled with turnover, were expected to lead to lower milk output, declining herd health, death loss in cattle and calves, and reduced feed efficiency. Higher wages, increased automation, and dairy relocation were all options being considered to mitigate labor losses.

Dairy farmers expressed concern about validity of immigration documentation and the prospects of being raided by Immigration and Customs Enforcement. Concern about validity of immigration documents retained by dairy farms was highest in the Northeast and Southeast, whereas the greatest confidence in documentation was in the Midwest and North. Dairy

Table 11. Levels of Concern among Dairies Related to Raids by Immigration and Customs Enforcement

	High or Very High (%)	Moderate (%)	Low or None (%)
U.S. average	27.1	20.8	52.1
California	29.1	26.3	44.6
Southwest	46.6	17.9	35.4
Northwest	18.3	27.2	54.5
Midwest	24.7	12.4	62.9
North	13.5	18.1	69.4
Northeast	36.8	23.6	39.6
Southeast	20.0	15.0	65.0

Source: Center for North American Studies.
Note: (n = 550).

farms in the Southwest were most concerned about being raided. Dairies in the North and Southeast were the least concerned.

Labor shortages and turnover, coupled with the unclear direction of immigration reform policy, have led to increased uncertainty and greater economic stress for U.S. dairy farmers. Continuing the status quo will likely have the largest negative impact on dairy farms employing the most immigrant hired labor, primarily in California, the Southwest, and the Northwest. Dairies in the Southeast and Northeast also may experience negative consequences of labor losses. In fact, it is likely that no region is totally immune from the impacts of immigrant hired labor losses on dairy farms.

Labor is only one of many issues affecting U.S. dairies. Yet labor, particularly as it relates to immigration policy, continues to be a major source of uncertainty and high cost for dairy farms. The status quo, or lack of immigration reform, only exacerbates this uncertainty. Policy alternatives that provide only temporary or seasonal labor pools are not optimal and will not solve the problems affecting the hired labor situation affecting many U.S. dairies, especially those in the South. The labor situation may have stabilized somewhat as the housing market and related construction industry slumped during the recent recession. Economic recovery, however, coupled with higher wages in certain sectors, such as energy and construction, will likely lead to a relocation of labor from agriculture, including the dairy sector.

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