

The Economic Impacts of Immigrant Labor on U.S. Dairy Farms



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Introduction

Immigrant labor continues to be an important component of many U.S. agricultural enterprises. The Economic Research Service, USDA has estimated that nearly one half of U.S. meat processing industry employees are immigrants of Hispanic origin. Similar shares of crop production workers are estimated to be immigrants as well. And in U.S. dairy, a 2009 study by the Center for North American Studies (CNAS) conducted for the National Milk Producers Federation indicated 62 percent of milk was accounted for by farms employing immigrant labor. With increased discussion of U.S. immigration policies and lack of Congressional action to resolve immigration issues, the prospects of reduced labor availability have adversely affected many sectors of U.S. agriculture.

This study updated the 2009 CNAS study by estimating the current economic impacts of immigrant labor on U.S. dairy farms and related sectors of the economy. Specific objectives include 1) assess the role and importance of hired immigrant labor to U.S. dairy farms; 2) estimate the effects of immigrant labor losses on U.S. milk production, farms and herd size; and 3) estimate the economic impacts of immigrant labor losses on economic output, value-added and employment in the U.S. dairy sector and supporting industries.

To accomplish these objectives, three separate analyses were completed. First, a national survey of dairy farmers was conducted to determine the relative importance of immigrant labor to individual dairy farms. Second, economic analysis was used to estimate the likely losses in milk production and reductions in herd size and farms associated with reductions in immigrant workers on dairy farms. Finally, input/output analysis was employed to examine how varying levels of labor losses would reduce industry sales, value-added and jobs. These losses were estimated not only for the dairy farm sector, but also for those sectors that supply inputs and services to dairy farms.

The results of this study are reported in the sections following the executive summary. The first section reports the survey results. The second section reports labor impacts on milk production, herd size and retail milk prices. The third section reports results of the input/output analysis. The last section contains a summary and conclusions of the report.

Executive Summary

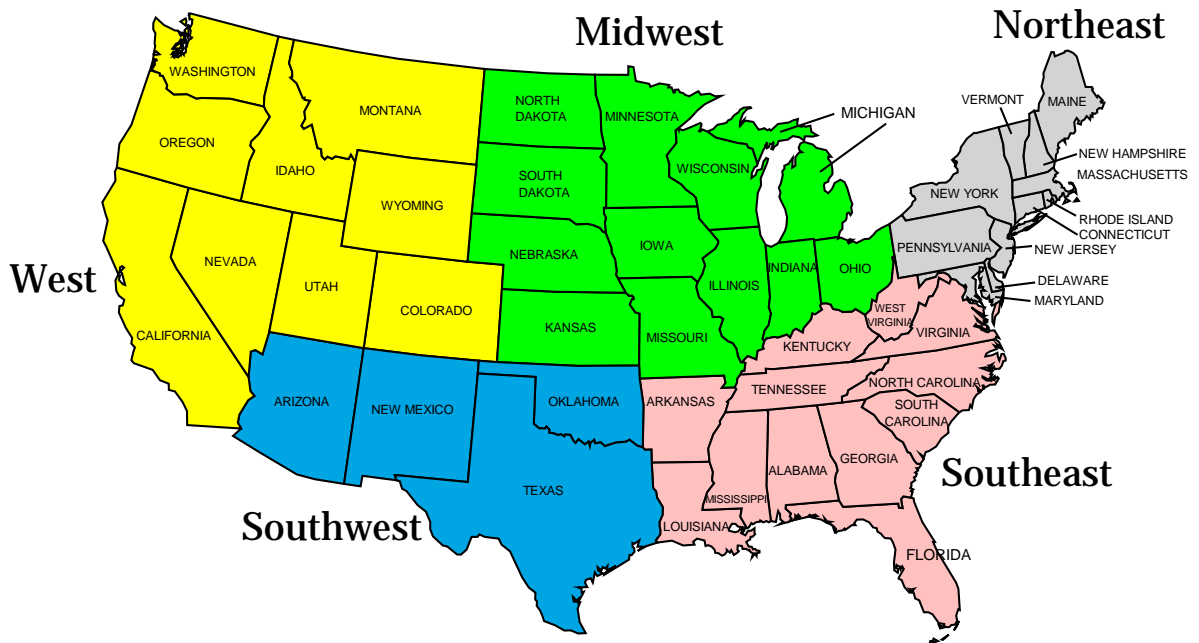
- A national survey of dairy farms was conducted during Fall 2014, with responses from all regions of the United States and all herd sizes.
- Immigrant labor accounts for 51 percent of all dairy labor and dairies that employ immigrant labor produce 79 percent of the U.S. milk supply.
- Dairy farm workers are paid an average wage of \$11.54/hour and with non-wage benefits included, an annual equivalent compensation of \$34,443. Dairy farms that hire immigrant labor pay hire average wages than farms that do not hire immigrants.
- Dairy farms employed an estimated 150,418 workers in 2013. An estimated 76,968 of those are immigrants.
- Eliminating immigrant labor would reduce the U.S. dairy herd by 2.1 million cows, milk production by 48.4 billion pounds and the number of farms by 7,011. Retail milk prices would increase by an estimated 90.4 percent.
- Eliminating immigrant labor on dairy farms would reduce U.S. economic output by \$32.1 billion and reduce employment by 208,208 jobs
- Approximately 64 percent of the losses noted above would occur in input supply sectors and services provided to U.S. dairy farms.

Section I. Survey of U.S. Dairy Farms

Survey Approach and Methods

U.S. dairy farmers were surveyed regarding their views on impacts of selected labor issues on their operations. Survey objectives were to determine the extent to which farms were using hired immigrant labor, wage and non-wage benefits, worker documentation, employee turnover and its effects on operational efficiency, and the extent to which shortages of immigrant labor were impacting dairy farms.

During October – December 2014, Readex Research conducted a national survey that was made available both electronically and in printed form to 5,000 U.S. dairy farms. The survey was distributed at the annual meeting of the National Milk Producers Federation (NMPF), by NMPF member cooperatives to their members, and in a mailing to 2,835 dairy farms as identified by Hoard’s Dairyman. Responses were categorized by dairy region throughout the United States. States were combined into regions indicated in the figure below:



A total of 1,223 questionnaires were returned. Of these, 223 were deemed to be unusable. Of the surveys not used:

- 88 farms were from respondents who were no longer involved in dairy farming;
- 10 did not provide any additional information other than they were still in dairy farming; and
- 125 provided either no or unreadable milk production data, making them unusable for consistent economic analysis.

As a result, there were 1,000 useable surveys included in the analysis. The 1,000 surveys consisted of 717 returned via mail and 283 submitted online. For some questions or parts of questions, answers were incomplete, so a lower number of respondents are reported for some individual questions.

Results of Dairy Farm Survey

The first set of survey questions were asked to determine location, herd size, and milk production. Because a non-random sample approach was used for distributing the survey, these questions are crucial in determining whether the survey responses as a group can be extrapolated to the entire industry. The number of farmers responding by herd size and region are reported in Table 1. Participation was present by a wide array of dairy farm sizes from across the United States and these data demonstrate that the survey received responses from farms of all sizes and from every region.

Table 1. Survey Respondents by Farm Size and Region

Number of Dairy Cows	Number of Dairy Farms Responding	% of Total Respondents
<i><50</i>	<i>45</i>	<i>4.5%</i>
<i>50-199</i>	<i>193</i>	<i>19.3%</i>
<i>200-499</i>	<i>154</i>	<i>15.4%</i>
<i>500-999</i>	<i>269</i>	<i>26.9%</i>
<i>1,000-1,999</i>	<i>184</i>	<i>18.4%</i>
<i>2,000+</i>	<i>155</i>	<i>15.5%</i>
Region of the United States	Number of Dairy Farms Responding	% of Total Respondents
<i>Northeast</i>	<i>172</i>	<i>17.3%</i>
<i>Southeast</i>	<i>38</i>	<i>3.8%</i>
<i>Midwest</i>	<i>467</i>	<i>46.9%</i>
<i>Southwest</i>	<i>72</i>	<i>7.2%</i>
<i>West</i>	<i>246</i>	<i>24.7%</i>

Source: National Dairy Labor Survey, 2014; Note: 5 Farms did not indicate region

It is also important to determine the distribution of milk produced by the survey respondents closely approximates the distribution of U.S. milk production as reported by

the National Agricultural Statistical Service (NASS), USDA. When comparing the milk production of survey respondents to the 2014 NASS 23-state milk production, only one region, the Southwest, was more than 2.5 percentage points different (Table 2). Further, the milk produced by survey participants, 30.5 billion pounds, is nearly 15 percent of the 23-state total. Since the surveyed milk production was distributed in similar proportions as the NASS-reported production and a significant amount of production was surveyed, the survey results do approximate the U.S. dairy industry. Therefore, extrapolation was appropriate.

Table 2. Surveyed Milk Production Analysis by Region

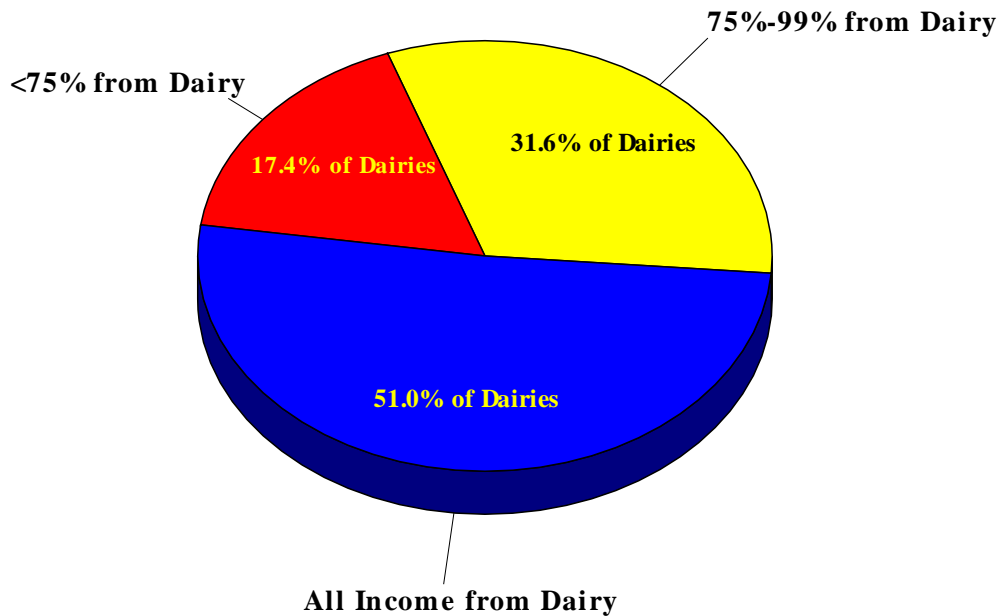
Region	Surveyed (Million Lbs.)	% of Surveyed	2014 NASS Reported (Million Lbs.)	% of Reported	Variance (Survey – Reported)
<i>Northeast</i>	<i>3,653.6</i>	<i>12.0%</i>	<i>29,827.5</i>	<i>14.5%</i>	<i>-2.5%</i>
<i>Southeast</i>	<i>1,197.7</i>	<i>3.9%</i>	<i>9,686.0</i>	<i>4.7%</i>	<i>-0.8%</i>
<i>Midwest</i>	<i>10,344.4</i>	<i>34.1%</i>	<i>70,493.0</i>	<i>34.2%</i>	<i>-0.1%</i>
<i>Southwest</i>	<i>5,276.0</i>	<i>17.4%</i>	<i>23,770.0</i>	<i>11.5%</i>	<i>+5.9%</i>
<i>West</i>	<i>9,881.3</i>	<i>32.6%</i>	<i>72,183.5</i>	<i>35.0%</i>	<i>-2.4%</i>
Total	30,353.0		205,960.0		

Source: National Dairy Labor Survey, 2014

Due to their small size and low level of production, 28,500 operations reported by NASS with less than 50 milking cows were excluded. The average herd size of the remaining 29,500 was 296 head. These operations account for 95.8 percent of U.S. milk production. As the survey average is still higher than the average herd size of operations with 50 or more milking cows, a weighted average approach was used when extrapolating surveyed responses to the national level. Further, totals for operations with more than 50 will be the basis for comparison of weighted averages calculated from survey results.

Most of the dairy farms surveyed derive the vast majority of their household income from their dairy operations. Fifty-one percent derive all of their income from dairy operations while 31.6 percent derive at least 75 percent of household income from their dairy operations. Only 17 percent of operations derive more than 25 percent of their household income from non-dairy sources. As a result, more than 60 percent of the survey respondent's reported milk production came from farms that receive all of their income from dairying. Another 30 percent of milk production was from farms that received at least 75 percent of total income from dairying. Only one-tenth of surveyed milk production came from farms that received less than 75 percent of income from their dairy operations. When compared to the 2009 study, U.S. dairy farmers now are more dependent on their dairies for a larger percentage of their income than previously.

Figure 1. Percent of Income from Dairy Farming



Source: National Dairy Labor Survey, n=992

Most dairies reported using hired labor; only 68 of the 1,000 responding dairies reported no hired employees. Survey results indicated approximately 150,418 employees work on dairy farms with 76,968 being of immigrants (Table 3). An average of 3.9 full-time and 1.2 part-time employees were employed on U.S. dairy farms for a total of 5.1 employees per farm (Figure 2). More than one-third of dairies hired immigrant employees and slightly more than one-half of the employees working on surveyed dairy farms were immigrants, or 2.6 immigrant employees on average (Figure 3). About 79 percent of U.S. milk production was produced on farms employing immigrant workers.

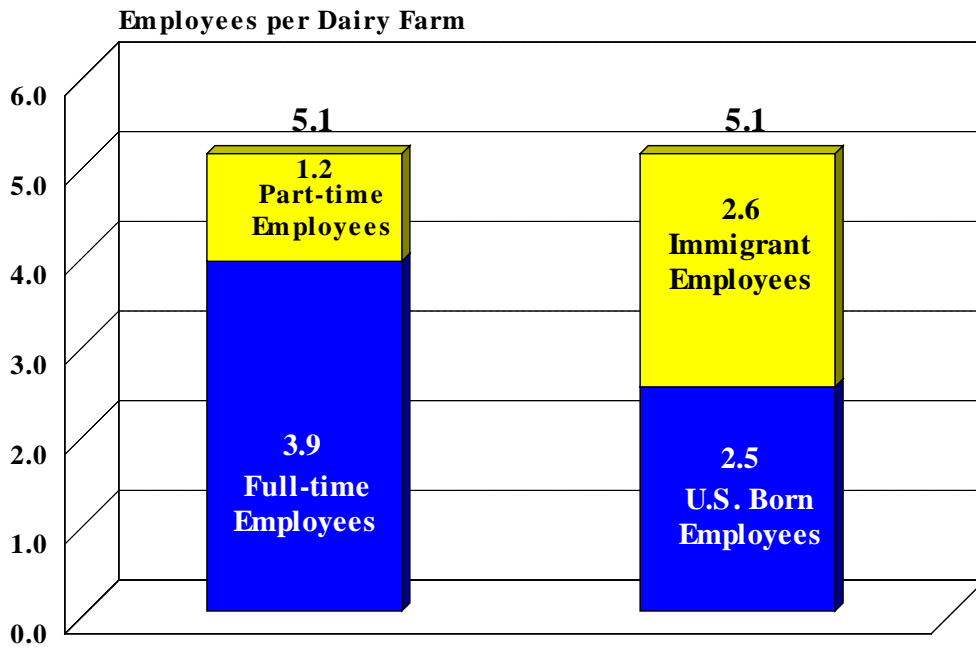
While the numbers of employees per farm are similar when comparing this study to the 2009 study, it should be noted that there are fewer total employees and more of those employees are full-time. Further, more are now immigrants than previously. As a result, the dependence of U.S. dairies on foreign labor is higher now than 2009.

Table 3. U.S. Dairy Hired Labor, 2013

	Full-Time	Part-Time	Total	Immigrant	Percent Immigrant
<i>Number of Employees</i>	<i>114,092</i>	<i>36,326</i>	<i>150,418</i>	<i>76,968</i>	<i>51.2%</i>

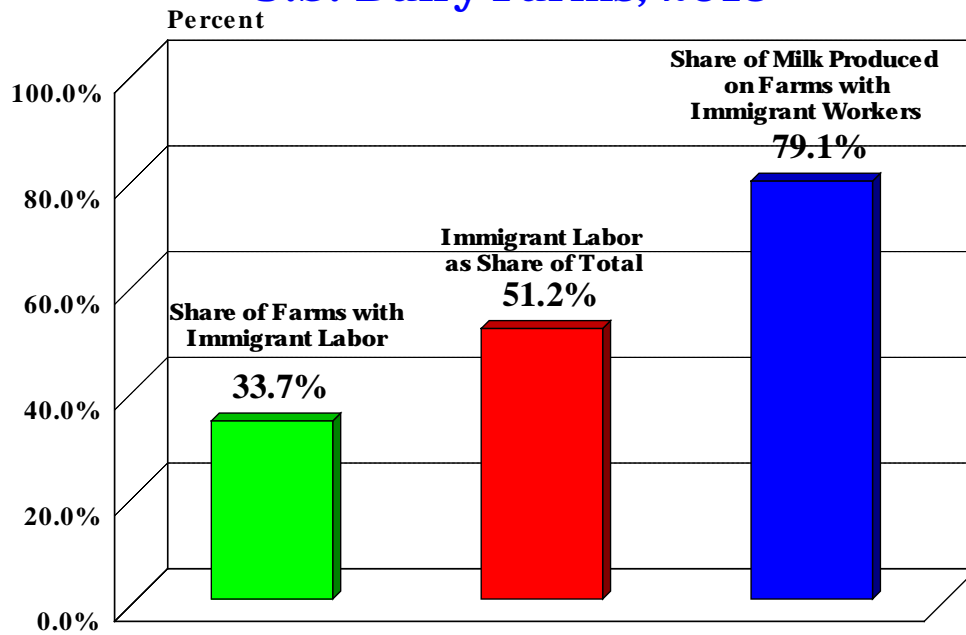
Source: National Dairy Labor Survey, 2014; n = 911

Figure 2. Workers on Dairy Farms Average, 2013



Source: National Dairy Labor Survey, n=911

Figure 3. Immigrant Workers on U.S. Dairy Farms, 2013



Source: National Dairy Labor Survey, n=911; Percents are for Farms with 50 or More Cows

The average *hourly* wage on U.S. dairy farms is \$11.54 per hour (Table 4). This wage rate is 16 percent higher than in 2009. When considering a full-time work year of 2,080 hours, the average *annual* wage is calculated as \$24,003. However, it is common for full-time dairy employees to work more than 40 hours per week. As a result, their average annual wage is likely higher. The average reported annual compensation package including benefits is \$34,443 resulting in an average annual benefit package of \$10,444. When considering only dairies that hire immigrant employees, the average hourly rate rises to \$11.69 per hour. Further, the average annual wage is \$24,315 with average total compensation of \$35,538. This indicates that hiring immigrant employees does not depress wages, at least on dairy farms. It may also imply that immigrant employees may have more experience or a better skill set for dairy work making them more valuable employees to the dairy farm.

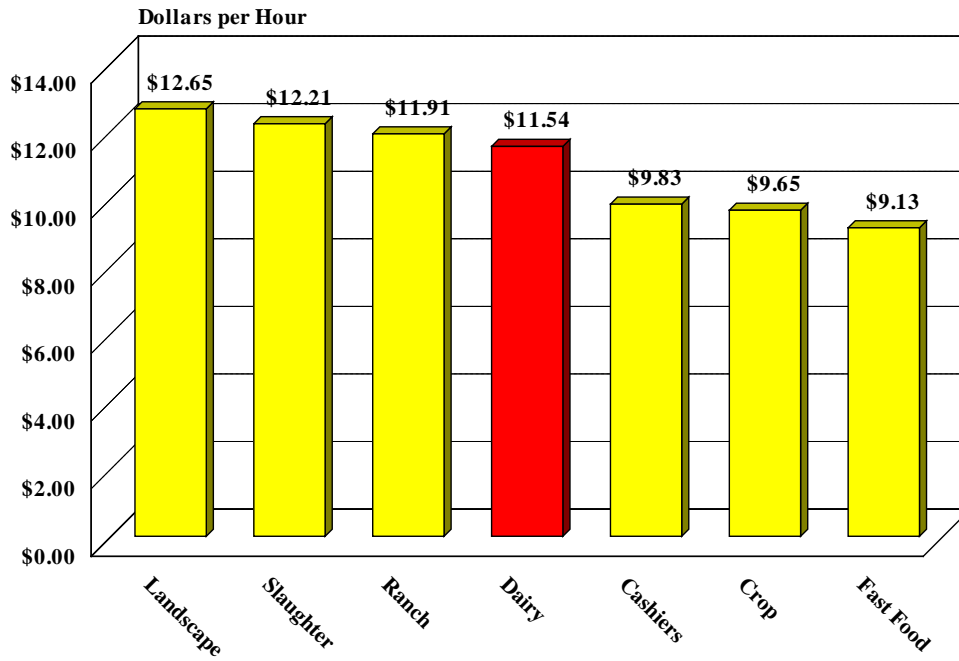
Table 4. 2013 Dairy Farm Compensation

Respondent Type	Average Hourly Wage	Average Full-time Annual Wage	Average Annual Compensation Package	Average Value of Benefits
<i>All Respondents (n=815)</i>	\$11.54	\$24,003	\$34,443	\$10,444
<i>Respondents with Immigrant Employees (n=671)</i>	\$11.69	\$24,315	\$35,538	\$11,222

Source: National Dairy Labor Survey, 2014

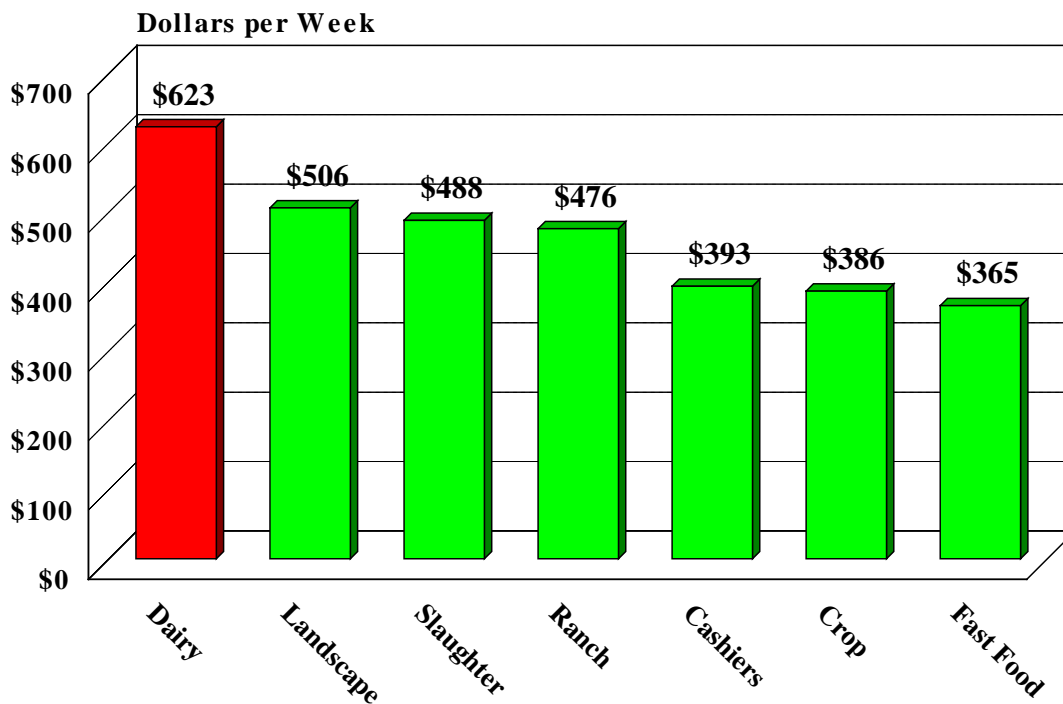
Dairy hourly wages compare favorably to most other agricultural occupations, but are lower than some, such as ranch and landscape (Figure 4). However, when weekly or annual equivalent compensation is calculated, dairy farm workers appear to be more highly compensated compared with other agricultural occupations. It has been reported that employees on dairy farms average 54 hours of work per week compared with no more than 40 for many other occupations. Thus, weekly salary comparisons show that dairy workers average \$623 per week compared with \$365 for fast food and \$476 for ranch workers, and \$506 for landscape employees (Figure 5). As a result, dairy workers were paid \$31,160/year during 2013 compared with \$18,250 for fast food and \$25,300 for landscape employees.

Figure 4. Hourly Wage Comparison, 2013



Source: National Dairy Labor Survey and Bureau of Labor Statistics

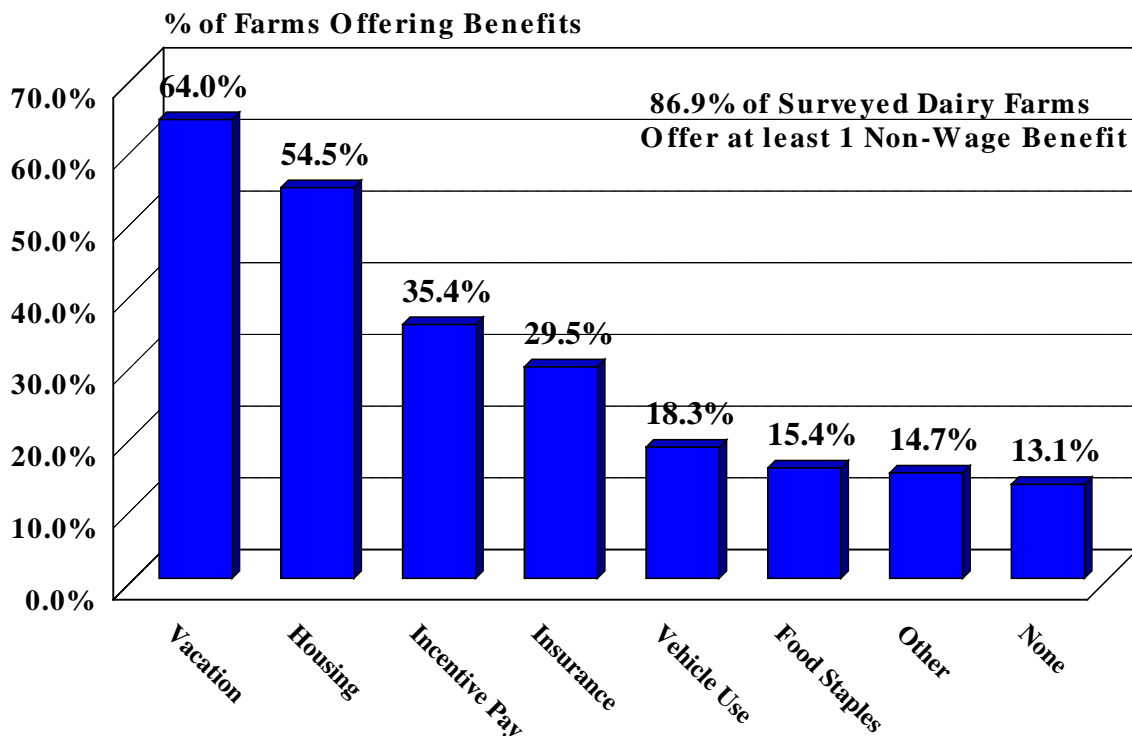
Figure 5. Weekly Salary Comparison, 2013



Source: National Dairy Labor Survey and Bureau of Labor Statistics

Many non-wage benefits compose the average value of benefits. Figure 6 contains the rate at which surveyed dairy farmers offered non-wage benefits. Nearly 87 percent of survey respondents indicated they offered non-wage benefits while only 13.1 percent did not. Paid vacation (64.0 percent) and housing (54.5 percent) are the most common incentives, followed by incentive pay, insurance, vehicle use, and food staples. About 15 percent of survey participants offered other non-wage benefits not specified in the question with paid utilities and retirement plans being the most common cited by respondents. Finally, dairy operations employing immigrant labor offer more non-wage benefits than farms in general.

Figure 6. Non-Wage Benefits on Dairy Farms



Source: National Dairy Labor Survey, n=924

Farmers revealed a low to medium level of confidence in the employment documents of the immigrant employees at their dairies with 38.9 percent indicating a low level of confidence and 32.1 percent indicating a medium level of confidence (Table 5). As a result, a majority of dairy farmers indicated that they had a relatively high level of concern with respect to actions such as raids or employee audits. Nonetheless, 80 percent of farms surveyed continue to hire immigrant employees.

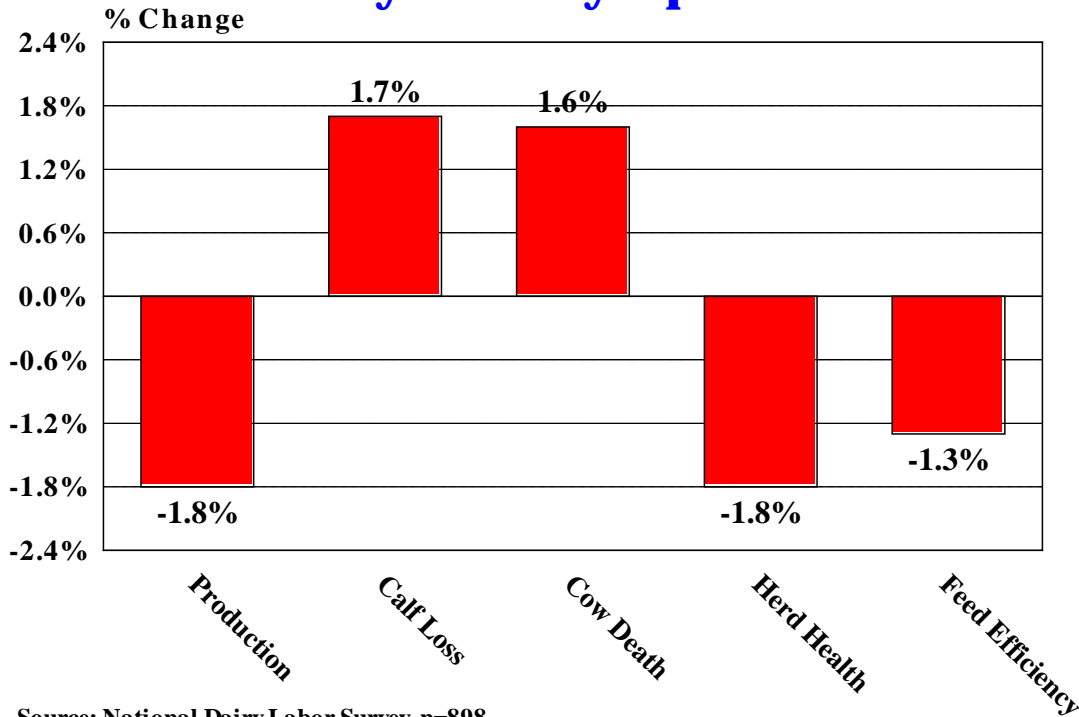
Table 5. Confidence in Documents and Concern about ICE/CBP Raids and Audits

Issue of Concern	Low	Medium	High	Average Rating
<i>Confidence in Documents of Immigrant Employees (n=750)</i>	38.9%	32.1%	28.9%	2.8/5.0
<i>Concern about Actions by Immigration and Customs Enforcement or Customs and Border Protection (n=727)</i>	21.2%	21.2%	57.6%	3.6/5.0

Source: National Dairy Labor Survey, 2014

The reported average turnover rate for dairy farms was 14.2 percent. Employee turnover on dairy farms impacts a broad range of production efficiencies. Milk production and overall herd health were the two impacts most reported by farmers responding to the survey while reductions in feed efficiency were least reported (Figure 7). Both milk production and herd health are reported to have decreased by about 1.8 percent as a result of employee turnover, while calf loss and cow death increased by about 1.7 percent and 1.6 percent, respectively. Feed efficiency also decreased due to employee turnover on dairy farms.

Figure 7. Effects of Employee Turnover on Surveyed Dairy Operations



Source: National Dairy Labor Survey, n=898

Section II. Analysis of Labor Loss Effects on Herd Size, Milk Production and Prices

Survey data were used to estimate the impacts of immigrant labor losses on U.S. milk production and herd size. These simulations use 2014 USDA-NASS data as the baseline and assume that domestic labor use remains constant. Survey results were extrapolated from regional estimates to reflect national impacts.

The simulations indicated that, with a 50 percent loss of immigrant labor, U.S. milk production would decline by 24.2 billion pounds, or 11.7 percent from the baseline of 206.7 billion pounds reported for 2014 (Table 6 and Figure 8). A complete loss of immigrant labor would reduce milk production by 48.4 billion pounds, or 23.4 percent.

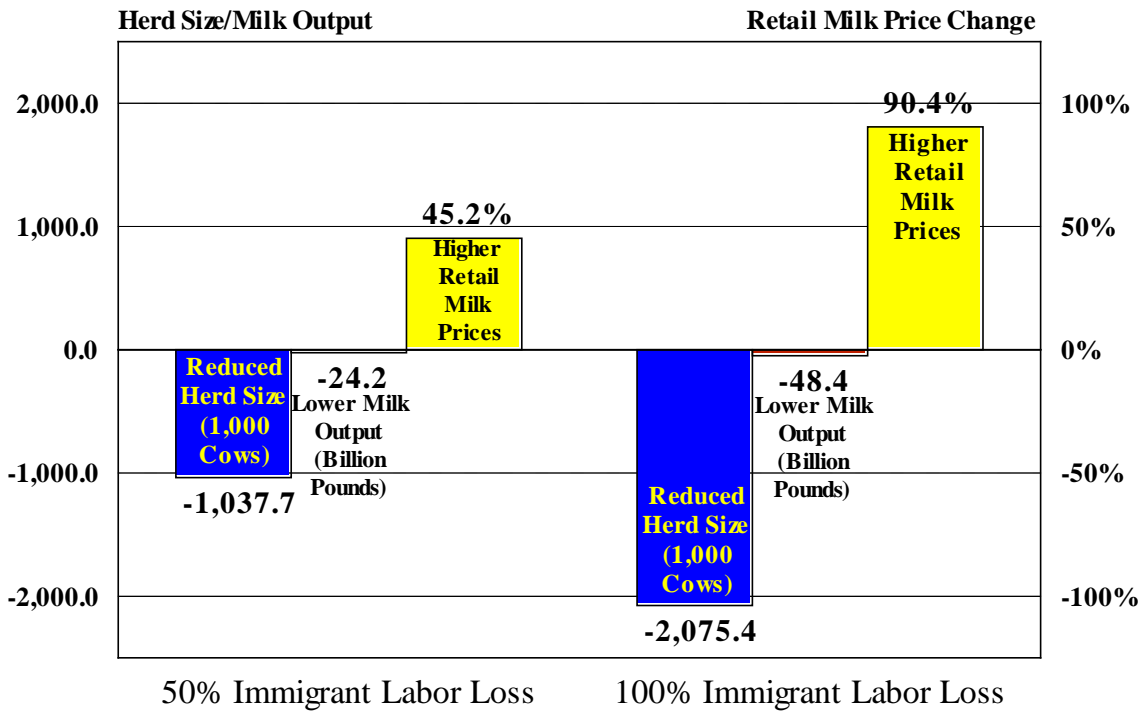
Immigrant labor losses of 50 percent would reduce the U.S. dairy herd by more than one million cows. The full elimination of immigrant workers would result in the loss of 2.08 million head in the U.S. dairy herd. Using the reported average dairy farm herd size of 296 cows, a 50 percent reduction in the availability of immigrant labor would result in a loss of 3,506 dairy farms while a complete loss of labor would result in a loss of 7,011 farms (Table 6).

Table 6. Impacts of Immigrant Labor Loss on U.S. Dairies

Dairy Characteristic Impacted	National Total (Baseline)	50% Labor Loss	100% Labor Loss
Impact on Dairy Herd Size (Head of Cattle)	9,207,600	-1,037,681	-2,075,362
Impact on Number of Dairy Farms	58,000	-3,506	-7,011
Impact on Milk Production (Million Pounds)	206,700	-24,200	-48,399

Lower milk supplies also have major implications for retail milk prices. This analysis assumes that the domestic labor force is constant and that the responsiveness of the quantity of milk demanded at retail has a negative relationship with price of -0.26 (Huang). Put another way, if retail prices rise by 1 percent, the quantity of milk demanded by consumers would decline by 0.26 percent. Conversely, by taking the reciprocal of -0.26, the availability of milk at retail declines by 1 percent, retail milk prices would rise by 3.86 percent. It also follows that processed dairy products such as cheese, yogurt and ice cream would also see retail price increases as the availability of the primary input in manufacturing would be lessened if immigrant dairy labor were to decline or be eliminated.

Figure 8. Immigrant Labor Loss Reduces Dairy Herd and Production & Raises Retail Milk Prices



Source: National Dairy Labor Survey, n=955

As a result, a 50 percent reduction in immigrant labor would raise retail milk prices by 45.2 percent (Figure 8). Eliminating all immigrant labor would result in a 90.4 percent increase in retail milk prices.² These higher prices may induce substitution to other foods and beverages or increase dependence on imported milk products.

As the dependence on foreign labor has grown, so has the impact of loss of immigrant labor on milk prices. The impacts on herd size are 54 percent greater now than in 2009, while the impact on milk production is 65 percent greater and the impacts on retail price is 48 percent greater.

² These results are based on a price elasticity of demand of -0.26 for fluid milk and a corresponding price flexibility of -3.86. If the price elasticity of demand were larger in absolute value (more elastic) or smaller in absolute value (less elastic), the price flexibility would change and the subsequent impacts on the price of milk associated with a drop in milk supply would be either smaller or larger, respectively.

Section III. Results of Input/Output Analysis

Input/Output Analysis is often used to assess the economic impacts of changes in industry sales or employment on a particular sector or cluster of sectors. The objective of this study was to estimate the economic impacts of losses in immigrant labor on the dairy farm sector. The general approach was to estimate the impacts of a specified percentage reduction in immigrant labor and its subsequent effects on fluid milk sales by dairy farms. To accurately estimate these impacts, it was necessary to estimate the number of workers employed by U.S. dairy farms. These economic impacts were estimated separately from the simulation analysis in the previous section and the results are independent.

Dairy Farm Employment

The number of workers employed by U.S. dairy farms is not reported by the U.S. Department of Agriculture or the U.S. Department of Labor. It was, therefore, necessary to estimate dairy farm employment for 2013. Using responses of dairy farmers regarding the number of employees, it was possible to estimate 2013 employment for each region in the United States.

The average number of employees by herd size as reported by survey participants was applied to the total number of operations by herd size as reported by NASS. The percentage of dairy farms in each size range that actually hire labor was also taken into account. Totals for each herd size range were then added together to obtain U.S. total dairy employment.

An estimated 150,418 employees were working on U.S. dairies in 2013 (Table 7). U.S. dairy employment is divided into two groups: employees who were born in the United States and those who were not. Of the total number of employees, 73,450 or 48.8 percent were estimated to be U.S.-born and 76,968 or 51.2 percent were estimated to be immigrants. Based on previous research, it is known that immigrant workers on dairy farms are generally not part-time employees. Thus, all immigrant employees are likely full-time employees, and are assumed to be full-time in this study.

Origin was determined by first estimating the number of immigrant employees in each herd-size range. This was done by multiplying the survey-reported average immigrant employees for each herd size range by the total number of herds in each size range while at the same time considering the percentage of farms within each size range that hire employees of any origin. To obtain U.S. born employment, immigrant employment was subtracted from total employment for each herd size in each region.

Table 7. U.S. Dairy Hired Labor, 2013

Total Employees	U.S. Born	Immigrant	Percent Immigrant
	<i>(Number of Jobs)</i>		<i>(%)</i>
150,418	73,450	76,968	51.2%

Source: National Dairy Labor Survey, 2014

Results of Input/Output Analysis

IMPLAN was used to estimate the baseline and to assess the economic impacts of immigrant labor on the U.S. dairy farms and related sectors. IMPLAN is an input-output system of the U.S. economy that includes national, regional, state and county impacts and it is maintained by a private sector firm, Minnesota IMPLAN Group (MIG). Economic multipliers for each sector of the economy are used to estimate how a change in one sector affects output, value-added and employment in other sectors of the economy.

Output refers to total sales for a sector such as dairy. Value Added is employee compensation, proprietor income, rents and royalties, and payment of indirect business taxes, and is a component of Output. Value Added is often referred to as income or gross state product. Employment is reported as number of total jobs.

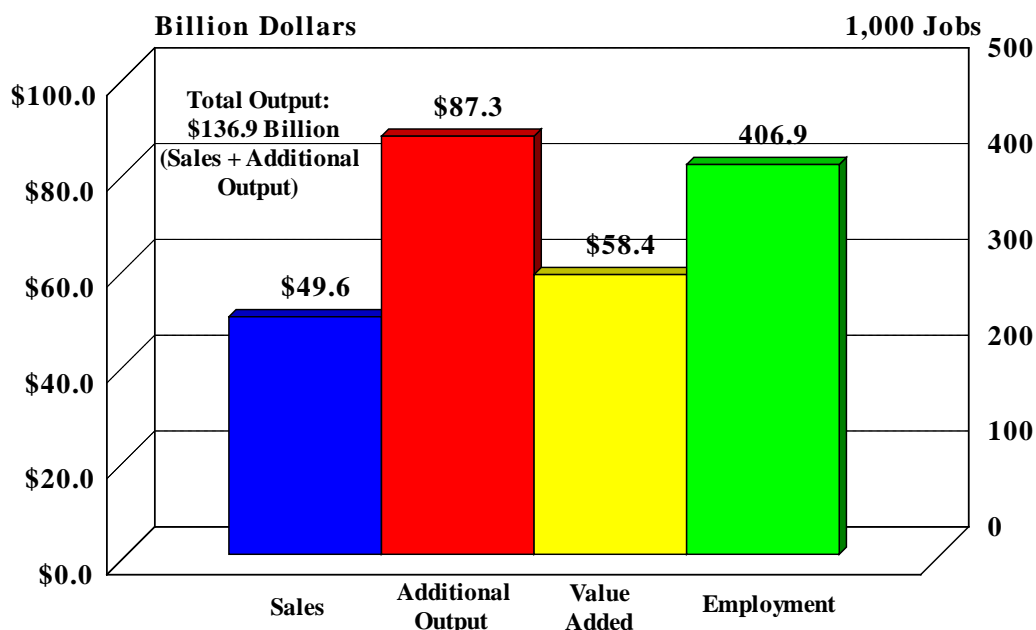
U.S. dairy sales for the 2014 reported by NASS were \$49.6 billion at the farm level (Table 8 and Figure 9). An additional \$60.1 billion in sales was estimated by IMPLAN and generated through purchases of inputs and services from supporting sectors, while \$27.3 billion was induced by household purchases from income earned by households in the dairy industry and its supporting sectors. As a result, the U.S. dairy farm sector was estimated to have a total economic impact of \$136.9 billion. These economic impacts do not take into account any impacts on retail sales of fluid milk or processed dairy products.

Table 8. Economic Activity Supported by the U.S. Dairy Farm Sector, 2014

	<u>Direct Impacts</u>	<u>Indirect Impacts</u>	<u>Induced Impacts</u>	<u>Total Impacts</u>
	<i>(Million Dollars)</i>			
<i>Output</i>	\$49,553	\$60,075	\$27,311	\$136,939
<i>Value Added</i>	\$20,255	\$22,433	\$15,663	\$58,351
	<i>(Number of Jobs)</i>			
<i>Employment</i>	150,418	152,941	103,541	406,900

Source: National Dairy Labor Survey, 2014, and Minnesota IMPLAN Group

Figure 9. U.S. Dairy Sales Support Economic Activity



Source: National Dairy Labor Survey and IMPLAN

Value added is that part of output which includes employee compensation, proprietor income, royalties, rents and payment of indirect business taxes. Of the \$49.6 billion in output attributed to dairy farms, \$20.3 billion is considered to be value added. Another \$22.3 billion in value added is attributed to all the sectors of the economy that support dairy production, while \$15.7 billion in value added is due to household spending by employees of both the dairy industry and its supporting sectors. As a result, total value added attributed to the dairy sector is \$58.4 billion. It is important to reiterate that value added is included in total output and therefore, should not be added to output.

It was estimated that U.S. dairies required 150,418 employees during 2013. Another 152,941 workers were employed by input and service sectors, while another 103,541 workers were employed as a result of induced spending by households related to the dairy industry. As a result, the U.S. dairy industry supports a total of 406,900 employees.

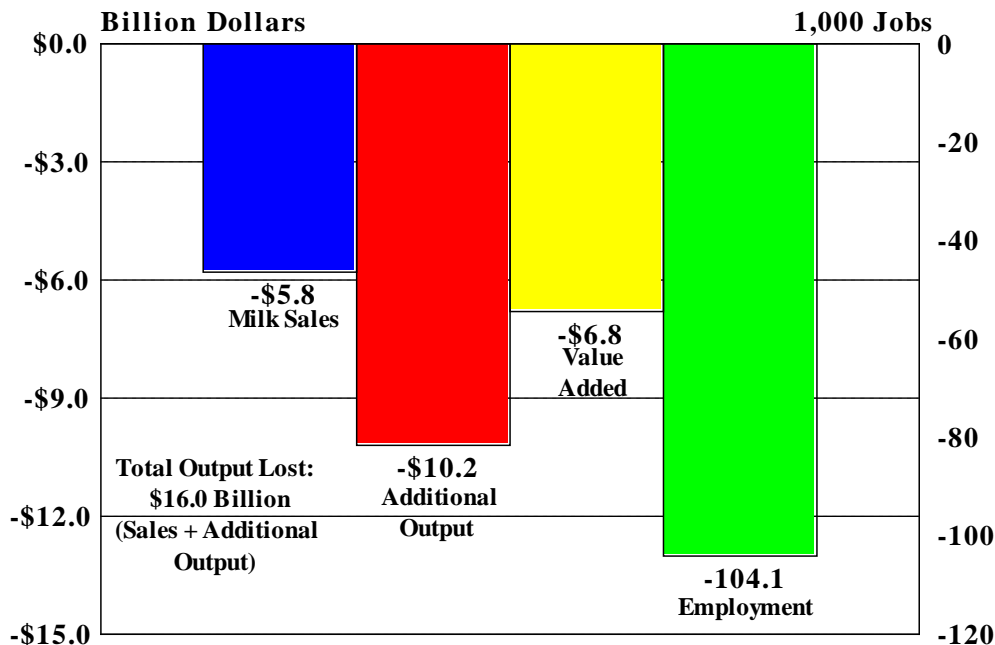
The permanent loss of significant portions or all immigrant labor would have major negative economic impacts on the U.S. dairy sector. A 50 percent labor loss would be expected to reduce fluid milk sales by dairies by \$5.8 billion while the economic loss throughout the U.S. economy would \$16.0 billion (Table 9 and Figure 10). The majority of the losses occurring off the dairy farm (\$10.2 billion) would be due to declining purchases by dairies from sectors that support dairy farm operations, such as input supply (fuel and feed), transportation, real estate and wholesale trade.

A complete loss of immigrant labor would reduce dairy fluid milk sales by \$11.6 billion, or 23.4 percent, and result in total economic losses to the U.S. economy of \$32.1 billion (Table 9 and Figure 11) Nearly \$14.1 billion of these losses would occur in sectors supporting dairy farm operations while another \$6.4 billion would be lost due to reduced household income in dairy operations and supporting sectors.

Table 9. Economic Impacts on Output of Immigrant Labor Loss on U.S. Dairies

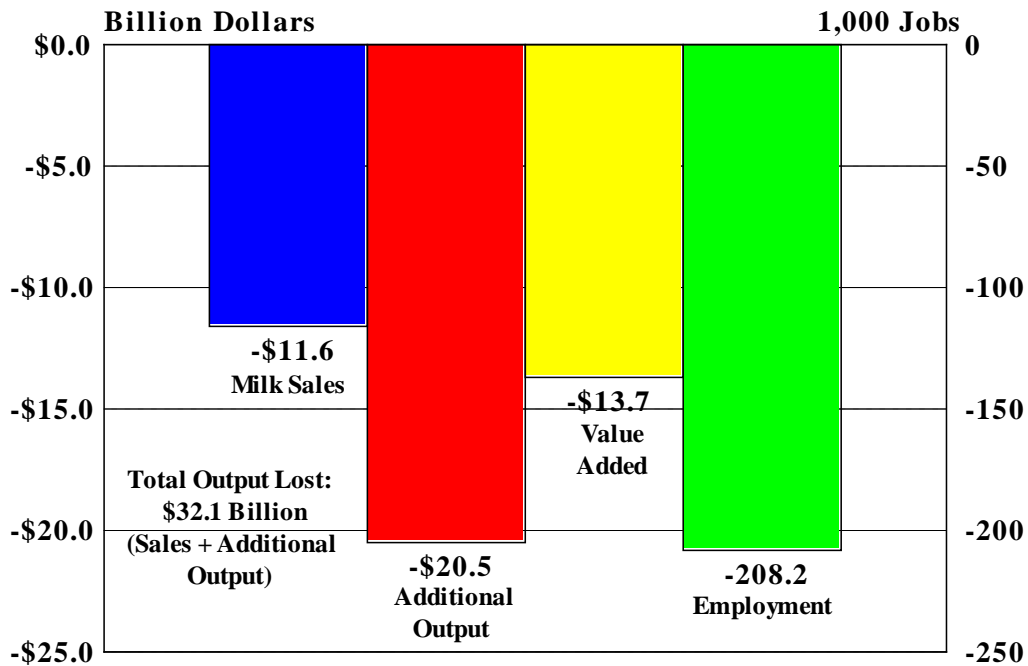
	<u>Direct Impacts</u>	<u>Indirect Impacts</u>	<u>Induced Impacts</u>	<u>Total Impacts</u>
	<i>(Million Dollars)</i>			
Baseline	\$49,553	\$60,075	\$27,311	\$136,939
50% Loss in Immigrant Labor	-\$5,802	-\$7,034	-\$3,197	-\$16,033
100% Loss in Immigrant Labor	-\$11,604	-\$14,068	-\$6,395	-\$32,067

Figure 10. Economic Impacts of 50% Immigrant Labor Loss



Source: National Dairy Labor Survey and IMPLAN

Figure 11. Economic Impacts of 100% Immigrant Labor Loss



Source: National Dairy Labor Survey and IMPLAN

There would also be substantial losses in value added due to the loss of immigrant labor. For a 50 percent immigrant labor loss, value added in the dairy sector would decline by \$2.4 billion while the total decrease in value added would be \$6.8 billion (Table 10). Eliminating immigrant labor would reduce dairy farm value added by \$4.7 billion. Corresponding total value added losses would reach about \$13.7 billion.

Table 10. Economic Impacts on Value Added of Immigrant Labor Loss on U.S. Dairies

	<u>Direct Impacts</u>	<u>Indirect Impacts</u>	<u>Induced Impacts</u>	<u>Total Impacts</u>
	<i>(Million Dollars)</i>			
Baseline	\$20,255	\$22,433	\$15,663	\$58,350
50% Loss in Immigrant Labor	-\$2,372	-\$2,626	-\$1,834	-\$6,832
100% Loss in Immigrant Labor	-\$4,743	-\$5,253	-\$3,668	-\$13,664

Fluid milk sales by U.S. dairy farms support more jobs beyond the farm-gate than directly involved on the dairy. U.S. dairies employ 150,418 workers annually, while 256,482 workers are employed in sectors that either support dairy farms by supplying inputs or services or are dependent upon household spending by dairy farms or other sectors (Table 11). Therefore, a reduction in the availability of immigrant labor on dairy farms would have substantial off-farm impacts.

A 50 percent loss in immigrant labor would result in 38,484 fewer dairy jobs and 65,620 fewer jobs in supporting sectors, for total job losses of 104,104. The complete loss in immigrant labor on U.S. dairy farms would mean that 76,968 fewer people would work on U.S. dairies. The loss of immigrant labor on dairies would result in the loss of economic activity supporting 131,240 jobs. The total impact throughout the milk production sector results in nationwide employment impacts and losses of 208,208.

Table 11. Economic Impacts on Employment of Immigrant Labor Loss U.S. Dairies

	<u>Direct Impacts</u>	<u>Indirect Impacts</u>	<u>Induced Impacts</u>	<u>Total Impacts</u>
	<i>(Number of Jobs)</i>			
Baseline	150,418	152,941	103,541	406,900
50% Loss in Immigrant Labor	-38,484	-39,129	-26,491	-104,104
100% Loss in Immigrant Labor	-76,968	-78,259	-52,981	-208,208

Summary and Conclusions

A national survey of U.S. dairy farms with 1,223 responses was conducted to examine the role and importance of hired immigrant labor. Immigrant labor is a major contributor to the economic viability of more than a third of the dairy farms surveyed. It is estimated that U.S. dairy farms employed an average of about 5.1 workers, with 2.6 being immigrants and 2.5 domestic.

Dairy farm workers were paid an average of \$11.54/hour in 2013, up about 16 percent from 2008. With almost 90 percent of all dairy farms providing additional (non-wage) benefits, such as vacation, housing, insurance and food, total annual compensation for each worker receiving non-wage benefits was slightly more than \$34,443. Dairy farm workers received a higher level of total compensation than most other agricultural occupations.

It was estimated that dairy farms employ about 150,418 workers, three-quarters of whom are full-time and 76,968, or 51.2 percent, being immigrants. Eliminating one-half of those immigrant workers would reduce U.S. dairy herd size by 1.04 million cows, leading to a 24.2 billion pound decline in milk production and 3,506 fewer farms. As a result, retail milk prices would rise by nearly one-third. Total elimination of immigrant labor would reduce herd size by 2.08 million cows, lower milk production by 48.4 billion pounds, and result in 7,011 fewer farms. As a result, retail milk prices would increase by 90 percent.

Economic impact analysis indicated that a 50 percent loss of immigrant labor would lower U.S. dairy farm sales by \$5.8 billion and reduce total economic output by \$16.0 billion nationwide. Elimination of all immigrant labor would reduce dairy farm sales by \$11.6 billion and total economic output by \$32.1 billion. A 50 percent loss of immigrant labor would eliminate 104,104 jobs throughout the economy while a total loss of immigrant labor would eliminate 204,208 jobs. About 63 percent of all job losses would occur in sectors that supply inputs or services to dairy farms.

Slightly more than one-third of all farms surveyed indicated that they use immigrant labor in some capacity. Immigrant labor accounts for nearly a half of all dairy labor, and dairies with immigrant labor account for about 79 percent of U.S. milk production.

As dependence on immigrant labor has increased, it has become more important to identify and document its importance to the dairy farm and related sectors of the U.S. economy. The role of immigrant labor on U.S. dairies is substantial and appears to be increasing as producers seek greater production efficiency in a dynamic global environment.

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