Rural Migration News

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Hired Labor in U.S. Dairies

Mammals feed their young milk until they can digest solid food; humans are almost unique among mammals in continuing to drink milk as adults. The U.S. produces the most milk from dairy cows, followed by India, China, Brazil, and Germany.

The U.S. had 9.3 million dairy cows in 2019 that produced an average 23,400 pounds of milk, for total milk production of 218.4 billion pounds.

There are dairy cows in all states including Alaska and Hawaii, but almost a third are in two states. California had 1.7 million or 18 percent of U.S. dairy cows in 2019, and Wisconsin 1.3 million or 14 percent.

Milk production has been stable in California over the past decade, declined in the southeastern states, but rose over 50 percent in CO, KS, and TX. Seven states produce more than 10 billion pounds of milk a year, CA, WI, ID, NY, TX, MI, PA. Growth in milk production was fastest in Texas over the past decade.

Dairies

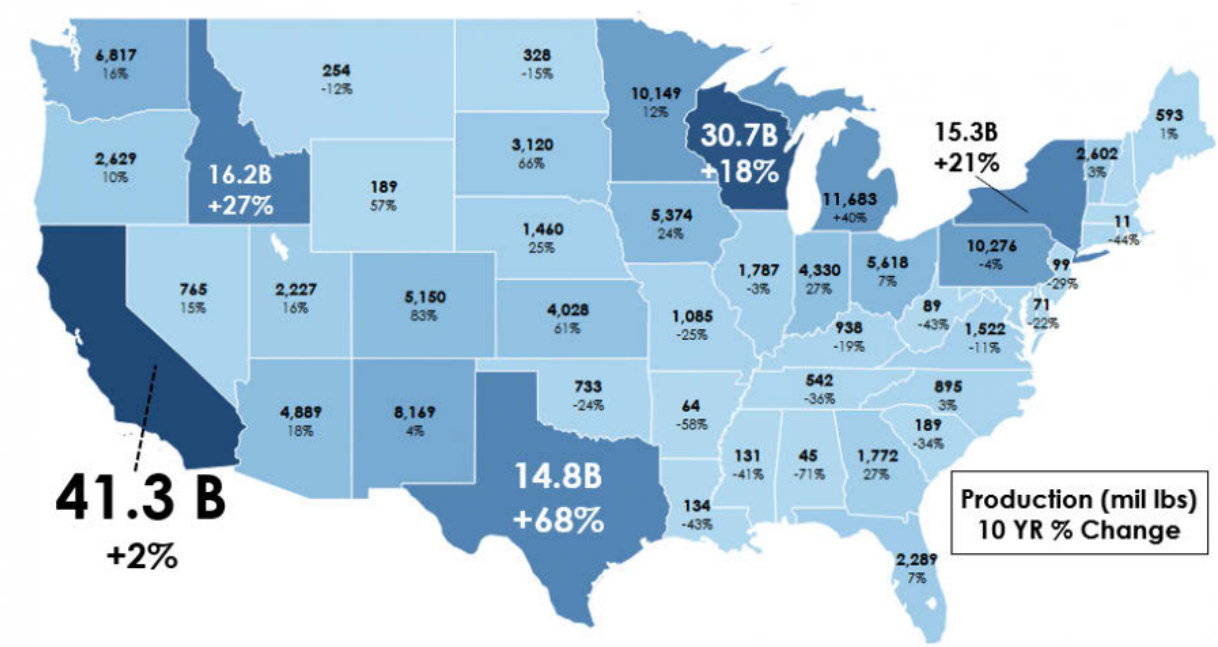
The Census of Agriculture (COA) reported that the US had 54,600 dairy farms with 9.5 million cows in 2017. Over the past several decades, dairy cows have been concentrated on fewer and larger farms. The 2017 COA reported that:

- 189 dairies had 5,000 or more cows and a total of almost 1.6 million or 17 percent of US dairy cows
- 525 dairies had 2,500 to 4,999 cows and a total of almost 1.8 million or 19 percent
- 1,239 dairies had 1,000 to 2,499 cows and a total of 1.9 million or 20 percent

This means that 1,953 large dairies, less than four percent of all US dairies, each had 1,000 or more cows and collectively accounted for 56 percent of U.S. dairy cows and 56

CA and WI Produced a Third of the 223 Billion Pounds of U.S. Milk in 2020

Figure 2. U.S. Milk Production by State



https://www.fb.org/market-intel/usda-report-u.s.-dairy-farm-numbers-continue-to-decline

percent of the $36.6 billion in farm-level milk sales in 2017. By contrast, 2,151 dairies, each with sales of less than $50,000, accounted for 0.2 percent of US milk sales.

Concentration

Dairy cows are being concentrated on fewer and larger dairies, as indicated by the growing share of U.S. milk from farms with 2,000 or more cows (green), and the declining share of milk from farms with less than 100 cows (purple and violet).

Low milk prices in 2018 and 2019 accelerated the decline in the number of U.S. dairies. Over half of the 70,375 US dairies in 2003 were gone by 2020, when the U.S. had 31,657 licensed dairies.

The major reason for fewer and larger dairies is economies of scale, which means that the cost of producing 100 pounds of milk falls as herd size increases. The cost of producing milk is lowest for dairy herds with 2,000 or more cows. Note that

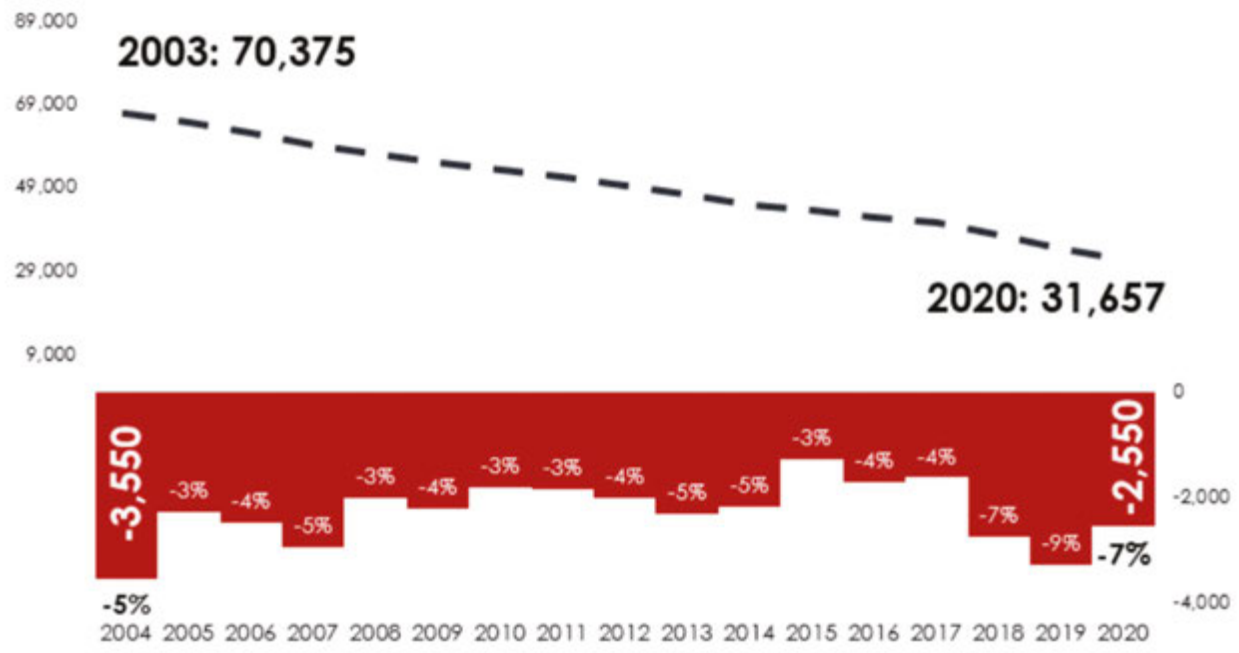
Most U.S. Milk was From Herds with 1,000 or More Cows in 2016

Milk Production Has Shifted to Larger Herds

Source: MacDonald, et al., 2020

The Number of Licensed U.S. Dairies Fell by Over Half Since 2003, and Fell 9% in 2019

Figure 3. Declining Number of Licensed Dairy Herds



Source: https://www.fb.org/market-intel/usda-report-u.s.-dairy-farm-numbers-continue-to-decline

costs of producing milk on dairies with fewer than 1,000 cows in 2016 exceeded returns from milk sales.

Labor

The COA groups farms by their North American Industry Classification System, and dairy farms are in NAICS 11212. Some 23,175 US dairies reported $3.9 billion in expenses for hired farm labor, including 3,587 dairies with $250,000 or more in labor expenses. Labor represented an average 12 percent of production expenses on dairy farms.

The Quarterly Census of Employment and Wages provides data on average employment on dairy farms and wages paid to dairy employees. QCEW data are drawn from unemployment insurance payroll tax data. Farm employers who employ 10 or more workers in each of 20 weeks of a quarter, or who paid $20,000 or more in quarterly wages, in the current or previous year, must enroll in their state's unemployment insurance system. Some states including California and Washington require practically all farm employers to enroll.

When paying UI taxes, employers report employees on the payroll for the period that includes the 12th of each month and all earnings for all workers during the quarter. The QCEW data show that 7,005 U.S. dairy establishments hired an average 106,840 workers and paid them an average $724 a week in 2019, for a total wage bill of $4 billion. The number of dairy establishments and average employment have been rising as U.S. dairy farms become fewer and larger.

QCEW total dairy wages of $4 billion in 2019 are similar to dairy labor expenses of $3.9 billion in 2017, but only a third of the COA dairies that reported labor expenses were also registered with state UI systems. This could reflect family dairies being organized as corporations and paying family members salaries, but not enrolling them in state UI systems.

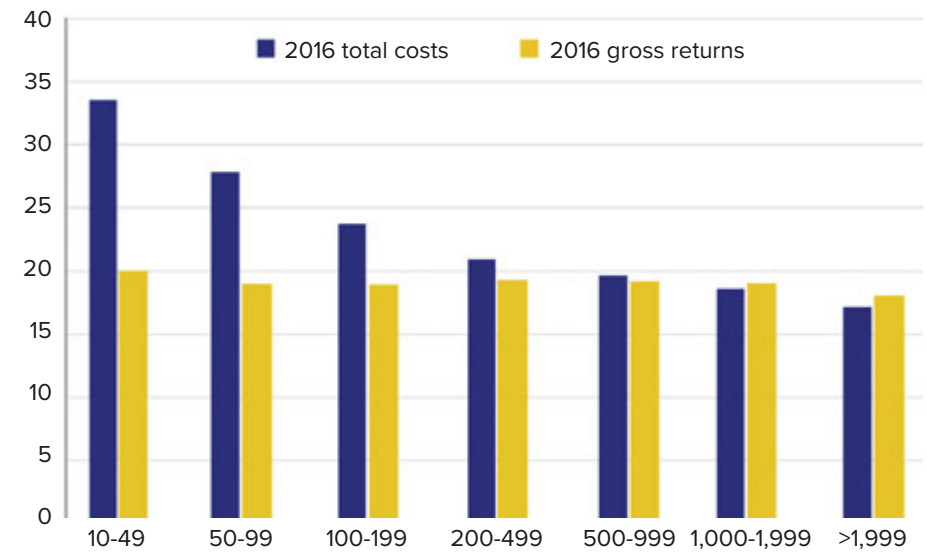
Larger dairies hire more labor: 95 percent of farms with 2,000 or more cows had expenses for hired labor. The cost of hired labor per 100 pounds of milk produced peaked at $2.30 per hundredweight on farms with 1,000 to 1,999 cows, making hired labor costs 12.4 percent of gross returns of $18.49 per hundredweight of milk. Hired labor costs were $1.75 per hundredweight on farms with 2,000 or more cows, making hired labor costs 10 percent of gross returns of $17.54 per hundredweight of milk produced. Larger dairies obtain more milk for each hour worked, that is, they have greater labor productivity.

As herd size increases, the importance of unpaid family labor declines and the importance of hired labor increases. For example, on farms with under 50 cows, unpaid labor accounts for 97 percent of total labor costs, while on farms with 2,000 or more cows, unpaid labor accounts for five percent of total labor costs.

The midpoint U.S. dairy herd size was 1,300 in 2017, meaning that half of the 9.4 million U.S. dairy cows were on farms with 1,300 or more cows and half were on dairies with fewer than 1,300 cows.

The Cost of Producing Milk Declines as Herd Size Increases

Milk Costs and Returns, by Herd Size, 2016



Source: MacDonald, et al., 2020

Texas A&M

Researchers at Texas A&M sent 5,000 surveys to dairy farms in 2014 and received 1,000 usable responses to study immigrant workers in U.S. dairies. A third of the responding dairies had 1,000 or more cows, including a sixth that had 2,000 or more cows.

The researchers estimated that there were 150,400 employees on U.S. dairies in 2013, including three-fourths who were employed full time. Over half or 77,000 U.S. dairy employees were born outside the U.S., so that a typical dairy with 5.1 employees had 2.6 foreign-born and 2.5 U.S. born employees. The Texas A&M researchers reported that immigrant workers are more likely than U.S.-born workers to be full-time employees.

Hired Labor Costs Rise with Herd Size Until 2,000 Cows, and Then Fall for Larger Dairies

Milk Costs and Returns, by Herd Size Class, 2016

Item	Herd size (milk cows)						
	10–49	50–99	100–199	200–499	500–999	1,000–1,999	>1,999
	Dollars per cwt						
Gross returns	19.53	18.53	18.39	18.78	19.00	18.49	17.54
Milk returns	16.88	16.53	16.48	16.75	16.93	16.37	15.67
Other returns	2.65	2.00	1.91	2.03	2.07	2.12	1.97
Operating costs							
Total feed costs	10.03	9.95	9.55	8.85	8.80	8.97	9.20
Purchased	4.44	5.01	4.94	5.66	6.54	7.18	7.61
Homegrown	5.19	4.80	4.52	3.13	2.23	1.78	1.59
Grazed	0.40	0.14	0.10	0.07	0.03	0.01	0.00
Other operating costs	4.32	4.00	3.77	3.50	2.94	2.71	2.32
Total operating costs	14.36	13.95	13.32	12.35	11.74	11.68	11.52
Gross minus operating	5.17	4.58	5.07	6.43	7.26	6.81	6.02
Allocated overhead							
Hired labor	0.40	0.61	1.28	2.08	2.18	2.30	1.75
Unpaid labor	12.78	7.53	3.84	1.45	0.69	0.30	0.10
Capital recovery	4.72	4.47	4.23	4.11	3.82	3.60	3.37
Other overhead costs	1.30	1.21	1.01	0.86	0.70	0.66	0.41
Total allocated costs	19.18	13.81	10.35	8.49	7.39	6.86	5.64
Total costs	33.54	27.77	23.68	20.85	19.13	18.54	17.16
Net returns	-14.01	-9.24	-5.29	-2.07	-0.13	-0.05	0.38

The Share of Hired Labor in Total Labor Costs Rises with Herd Size

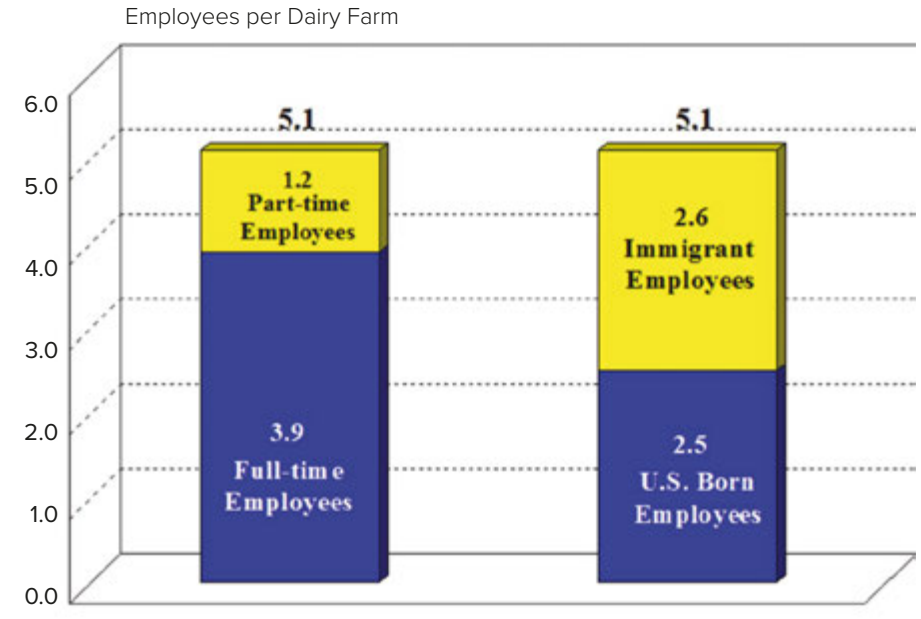
Mean Hours, Costs, and Wages by Herd Size

Herd size (milk cows)	Labor costs, milk production ($/cwt)		Imputed wage for unpaid labor ($/hour)	Annual hours, paid & unpaid, whole farm	Annual hours, principal operator	
	Total	Unpaid			Whole farm	Dairy enterprise
10–49	$13.18	$12.78	$21.74	6,166	3,522	2,387
50–99	$8.14	$7.53	$22.18	8,207	3,977	2,762
100–199	$5.12	$3.84	$23.16	11,903	3,879	2,701
200–499	$3.53	$1.45	$23.71	22,460	3,683	2,428
500–999	$2.87	$0.69	$25.03	34,805	3,427	2,560
1,000–1,999	$2.60	$0.30	$25.09	64,962	3,103	2,526
>1,999	$1.85	$0.10	$25.81	101,477	2,916	2,553

Source: MacDonald, et al., 2020

Texas A&M Survey Found 51% Immigrant Workers on U.S. Dairies in 2013

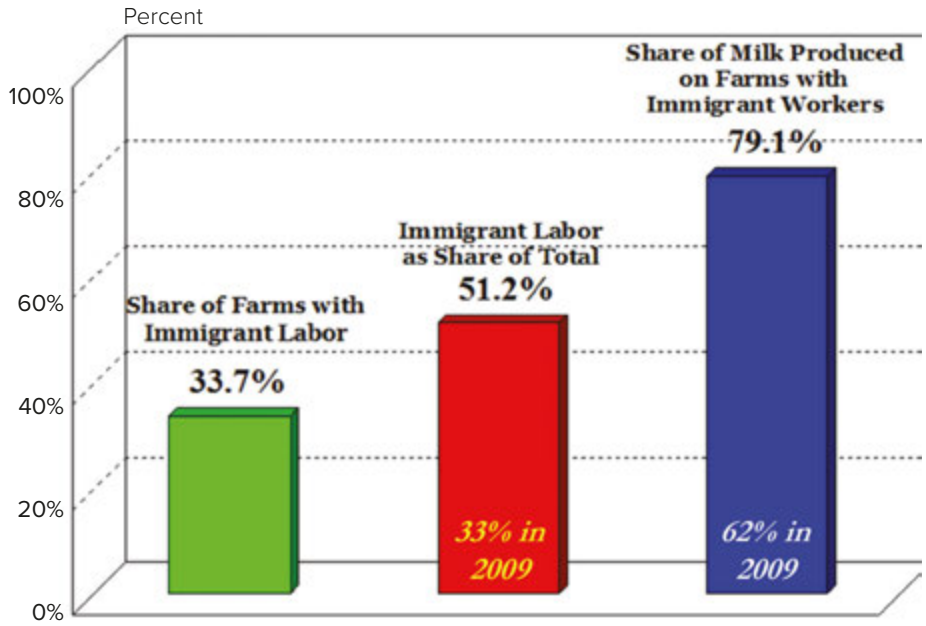
Workers on Dairy Farms Average, 2013



Source: National Dairy Labor Survey, n=911

Texas A&M Survey: the 1/3 of Dairies with Immigrant Workers Produced Almost 80% of U.S. Milk

Immigrant Workers on U.S. Dairy Farms, 2013



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

Dependence on hired workers increases with the number of cows. Two-thirds of the respondents had fewer than 1,000 cows, which may explain why only a third of the responding farms reported hiring immigrant workers. The larger size of the farms with immigrant workers is reflected in the fact that they produced almost 80 percent of U.S. milk. The Texas A&M survey asked dairies about their level of confidence in the documents provided by employees when they were hired. Almost 39 percent of 750 respondents said they had a low-level of confidence in the documents presented, and 21 percent of 727 respondents said they were concerned about immigration enforcement.

All hired workers on dairies earned an average $11.54 an hour in 2013. Immigrant workers earned slightly more, $11.69 an hour. Dairy workweeks averaged 54 hours, for weekly wages of $623. The QCEW reported that 6,862 dairy establishments had average employment of 95,500 in 2013, and paid average weekly wages of $570. The QCEW assumes a 2,080-hour work year, so annual QCEW wages of $29,582 in 2013 imply a $14.22 hourly wage.

The Texas A&M researchers estimated that eliminating half of the foreign-born workers in U.S. dairies would reduce the number of dairy cows and raise retail milk prices, with multiplier effects due to less milk being transported, processed, and sold. Survey respondents reported 13 percent employee turnover, meaning that a dairy with an average 10 employees would issue 13 W-2 statements a year.

Marketing

Raw milk is 87 percent water, four percent fat, and nine percent skim solids. Milk is transported by truck from farms to processors in bulk tanks and bottled for fluid milk or manufactured into cheese or other dairy products.

In the U.S., fluid milk consumption per capita has been declining, while the consumption of cheeses, led by mozzarella and cheddar, and butter has been increasing. Americans are eating more butter per person than they did in the 1980s and 1990s, and cheese consumption per capita tripled between 1970 and 2020.

Texas A&M Survey: 39% of Dairies had Low Confidence in Employee-Presented Documents, and 21% were Concerned about Immigration Enforcement

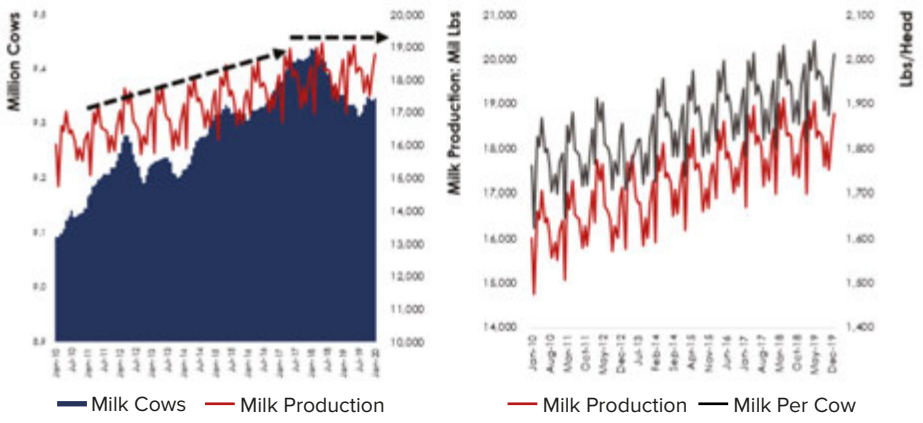
Table 5. Confidence in Documents and Concern about ICE/CBP Raids and Audits

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

Source: National Dairy Labor Survey, 2014

The Number of Dairy Cows is Stable, But Milk Production per Cow Continues to Increase

Figure 1. Milk Production Driven by Herd Size and Increasing Productivity



The leading U.S. milk processors in 2019 were Nestle, Montreal-based Saputo, Dean Foods, Danone, and Kraft-Heinz. Each has many labels, and several bottle private-label milk for supermarkets

Over half of U.S. milk is marketed by dairy cooperatives that include Kansas City-based Dairy Farmers of America, Minnesota-based Land O'Lakes, and Visalia-based California Dairies.

Dairy exports measured in total milk solids were record 2.1 million tons in 2020, representing a sixth of U.S. milk production. Mexico is the largest export market for U.S. dairy exports, followed by Southeast Asia, Canada, and China.

NASS

The monthly Milk Production report surveys farmers to obtain data on cows and milk production. The number of dairy cows and milk production have leveled off in recent years at about 9.3 million and 218 billion pounds a year. Milk production per cow continues to increase, reaching almost 23,400 pounds in 2019.

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