

Agricultural Labor and Immigration Reform

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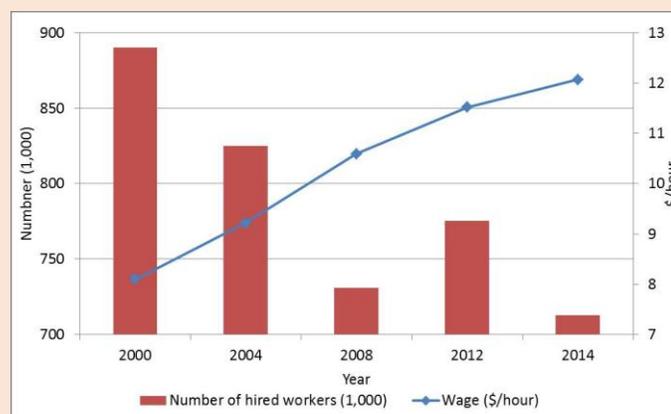
Specialty crop growers generally depend on a large number of farm workers to grow, harvest, and pack their tender fresh crops. Consequently, growers are sensitive to both the cost and availability of farm labor. Working conditions in agriculture are often physically challenging and hourly earnings are relatively low compared to other employment opportunities for U.S. residents. Thus, a large portion of agricultural labor needs have been met by immigrant workers. A high percentage of these immigrants are working in the United States without legal authorization. In recent years grower concerns over cost and availability have intensified as the rhetoric over comprehensive immigration reform continues to harden. Since 2000 there has been much discussion about mass deportation, building fences along the United States and Mexico border, instituting mandatory E-Verification to determine worker eligibility, and reforming the agricultural guest worker program known as H-2A. To date the U.S. Congress has not achieved comprehensive immigration reform. U.S. agriculture is in desperate need of solutions to address labor shortages. It is particularly so for the labor-intensive specialty crop industry.

Specialty crops are mainly fruits, vegetables, horticulture, and nursery crops. Growers of specialty crops often compete for the same agricultural workers and share many of the same concerns with respect to farm labor. Each regional crop industry, however, faces unique challenges in securing a stable and cost sustainable workforce. Growers offer an important viewpoint on viable solutions. A recent survey of the strawberry growers in Florida, one of the top three specialty crop states, provides some insights into the concerns shared by many specialty crop growers in regions across the United States.

National Hired Farm Labor

The use of hired labor on U.S. farms varies significantly, with the majority of farms—most of which are small—not hiring any farm labor. The number of hired workers in U.S. agriculture has steadily declined over

Figure 1: Annual Average Number of Hired Workers in U.S. Agriculture (Excluding Service Workers) and Average Wage Rates



Source: USDA/NASS, 2014b

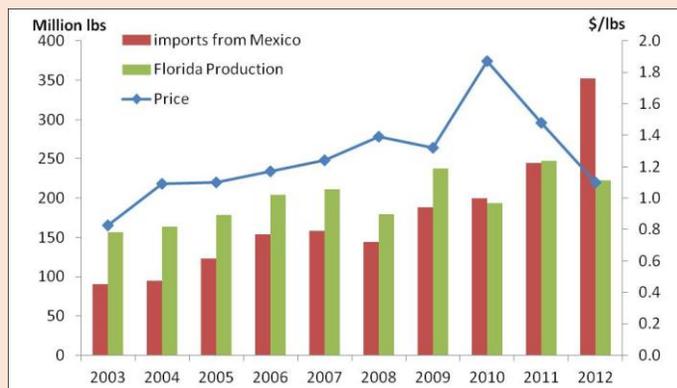
the last decades. Hired workers declined from 890,300 in 2000 to 712,500 in 2014 (Figure 1), at the same time farm cash receipts have more than doubled—from \$192 billion to \$420 billion (USDA/ERS, 2014b). Over the same period labor expenses have increased significantly. The 2014 U.S. annual average wage rate for all hired farm workers was \$12.07 per hour, up 51% from \$8.10 per hour in 2000 (USDA/NASS, 2014b). As mentioned, the use of hired farm workers varies by commodity and farm size. The largest 4% of U.S. farms accounted for 66% of total farm sales and employed 42% of hired farmworkers (USDA/NASS, 2014a).

In recent years the debate over immigration reform has highlighted the fact that a majority of U.S. farm workers are not legally authorized to work in the United States. The 2012 National Agricultural Worker Survey (NAWS) showed that 74% of hired crop workers were born in Mexico and 53% of all farm workers self-reported that they were not legally authorized to work in the United States. Among these unauthorized workers, 90% were working in specialty crops.

A Look at the Florida Strawberry Industry

Fresh strawberries are an important crop in the U.S. fruit and vegetable industry with a national farm gate value of \$2.6 billion in 2013, more than two times higher than sales of fresh tomatoes. Florida ranks second behind California in annual U.S. strawberry production and is the largest supplier of winter strawberries (USDA/NASS, 2014b). The farm gate value of Florida strawberries in 2013 was \$333 million (USDA/NASS, 2014b) and the overall economic contribution of the industry to the state economy was estimated to be more than \$700 million (FDACS, 2013). The industry produces fruit on 11,000 acres with 95% percent of the production concentrated near Plant City in central Florida. Strawberry production, like many fresh fruit and vegetable crops, is labor intensive. Hand labor is required to set transplants, cut runners, and harvest berries. It is estimated that approximately 15,000 workers are employed in the industry annually (Parker, 2015).

Figure 2: Florida Strawberry Production, U.S. Imports from Mexico and Florida Farm-Gate Price



Source: USDA/NASS, 2014b

Competitiveness

In recent years the industry has been struggling with competition from Mexico. Lower production costs in Mexico and greater market integration between the United States and Mexico as a result of the North American Free Trade Agreement (NAFTA) have contributed to an increase in imported Mexican strawberries. Between 2003 and 2009 imported strawberries from Mexico doubled and then doubled again between 2009 and 2012 (USDC/USCB, 2012).

In 2009, imported Mexican strawberries were 20% less than

Florida’s market share but they are now about two times higher. The rising imports have caused falling prices and market crashes (Figure 2). The Mexican government has stated their industry goal to double its strawberry production again in the next five years (Fresh Fruit Portal, 2013).

The ability of the Florida strawberry industry to maintain its competitiveness with Mexico is being challenged on two fronts. First, the cost to grow, harvest and pack one acre of strawberries has been increasing from \$7,700 in 2008 (UF/FRED, 2010) to about \$9,000 in 2012 (Guan, Wu, and Whidden,

2013). Second, it is now increasingly difficult to find enough farm workers throughout the entire strawberry season. In recent years many agricultural workers in the Florida industry have been recent immigrants from Mexico. Many of these workers are not legally authorized to work in the United States. With intensive debate over immigration reform, unauthorized workers currently in the United States are at risk of deportation, and heightened security along the United States and Mexico border has been limiting the flow of new workers from Mexico. More significantly, Taylor, Charlton, and Yúnez-Naude, (2012) predicted that the number of Mexican farm workers will be decreasing as the Mexican economy improves and employment opportunities within Mexico increase. In fact, the Pew Research Center reported that more Mexicans have returned to Mexico than have migrated here since the end of the Great Recession—that is, from 2009 to 2014 (Gonzalez-Barrera, 2015).

Labor Demand and Costs

Labor is the largest cost item in the Florida strawberry production budget; on average, it accounts for about 40% of farm-gate sales (Guan, Wu, and Whidden, 2013). The industry relies heavily on temporary workers for field work. Use of temporary or seasonal workers starts in late September when planting begins, and continues through the following April when harvesting finishes. The demand for temporary

Table 1: Use and Cost of Labor on Florida Strawberry Farms

		Small Farms	Large Farms	Overall
Distribution of farms by peak number of temporary workers	1-99 workers	59%	0%	42%
	100-199 workers	32%	11%	26%
	200-499 workers	9%	44%	19%
	500-1000 workers	0%	44%	13%
Average number of temporary workers		92	463	191
Temporary worker labor-land ratio		1.25	1.16	1.22
Distribution of farms by costs of temporary labor (\$/acre)	< \$6000	29%	15%	19%
	\$6000-\$6999	71%	0%	19%
	\$7000-\$7999	0%	30%	22%
	\$8000-\$8999	0%	25%	22%
	\$9000-\$9999	0%	30%	19%
Average temporary costs		\$7,551	\$6,092	\$7,207
Distribution of farms by total labor costs (\$/acre)	< \$7000	29%	10%	14%
	\$7000-\$7999	29%	5%	11%
	\$8000-\$8999	14%	14%	14%
	\$9000-\$9999	14%	29%	24%
	\$10000-\$10999	14%	33%	29%
	≥\$11000	0%	10%	7%
Average total labor costs		\$9,179	\$7,623	\$8,845

Note: Small farms are those below 200 acres and large farms are 200 acres or more.

Source: Guan, Wu, and Whidden, 2013.

workers fluctuates over the season. A significant amount of hand labor is needed for setting transplants in September and October. As the plants establish and grow, there is little demand for hand labor. By late November the demand for workers starts to increase again as harvesting begins. As harvesting activities intensify in January, February, and March, the number of workers increases dramatically. The season ends in April and the demand for labor drops to near zero.

The peak number of temporary workers varies significantly by farm size. In a 2013 survey of growers, 59% of small growers—those with less than 200 acres of strawberries—hired less than 99 temporary workers during the peak harvest time, while large growers hired on average more than 460 temporary workers (Table 1). Each acre of strawberries requires one to two temporary workers to harvest at the peak time. The average temporary labor to land ratio is 1.22. Large farms are somewhat more efficient in labor use.

The majority of labor costs are the expense for temporary workers. Table 1 shows the distribution of per acre costs of temporary labor in five categories, which suggests large differences across farms. Across all surveyed farms, costs for temporary workers ranged between \$5,000 and \$9,720 per acre with an average cost of \$7,207 per acre. While large farms employed more workers, the average cost per acre for temporary workers was nearly \$1,500 less than among small farms (\$7,551 vs. \$6,092). Year-round workers on small farms generally are family members. Results show that 52% of farms had less than ten year-round workers while 13% of farms had 40 or more. An average grower hired eight year-round workers. Most of year-round workers were engaged in management and paid a higher salary. The average per acre expense of year-round labor was \$1,638, accounting for 19% of total labor costs.

Grower Concerns over Labor Shortages

Nearly all temporary workers are hired to harvest berries and growers pay a piece rate for harvesting. While piece-rate workers are guaranteed the statutory hourly minimum wage, many growers commented they could not find enough workers to pick strawberries, particularly during the heaviest harvest period between January and March. When asked to rank top three industry threats, growers consistently listed Mexican competition, U.S. government regulations, and labor shortages as their top three concerns (Guan, Wu, and Whidden, 2013). Nearly a quarter of the surveyed growers ranked labor shortage as the most serious challenge. This percentage increased to 50% among large farms, which suggests larger growers are more acutely sensitive to labor shortages (Table 2). In fact, labor is at the heart of all the three challenges. Pressure from foreign competition is driven mainly by lower labor costs. Farm labor regulations are not as rigorous in Mexico thereby creating another cost disadvantage for Florida growers, and immigration reform will directly impact the movement of Mexican workers.

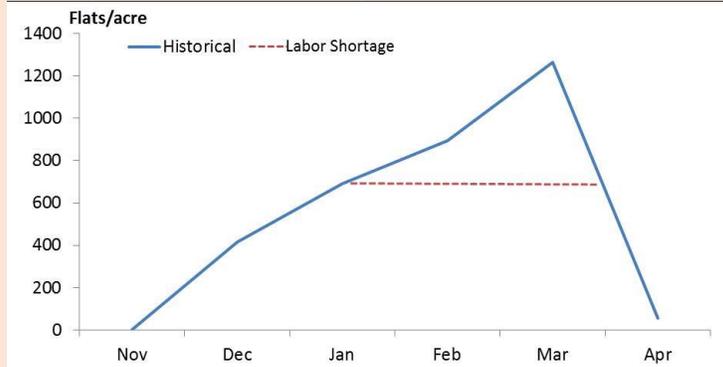
Table 2: Summary of Florida Strawberry Grower Perceptions, by Farm Size

Question	Small Farms	Large Farms	Overall Average
Labor as #1 threat (%)	19%	50%	24%
Estimate of illegal domestic workers (%)	79%	86%	80%
Feasibility of E-Verify (% Yes)	0%	0%	0%
Plan to downsize (% Yes)	23%	14%	21%
Considering H-2A Program (% Yes)	30%	75%	41%

Note: Small farms are those below 200 acres and large farms are 200 acres or more.

Source: Guan, Wu, and Whidden, 2013.

Figure 3: Average Monthly Strawberry Supply and Consequence of Labor Shortage



Growers said they are experiencing labor shortages and that these shortages are reducing overall yield and increasing the unit cost of harvesting. The piece rate for picking one flat of strawberries during 2012 was \$2.20, 10-cents higher than what was paid the previous year—piece rates in the year after the survey, 2013/14 season, increased to about \$2.50 per flat. More significantly, growers reported that more than 600 flats per acre were not harvested during the 2012

season because of a combination of lack of harvesting labor and lower fruit prices. Six hundred flats represented a 20% yield loss. Some growers indicated that they had to abandon as much as 60% of strawberries in some of their lands. The shortages of labor practically made the supply curves of some growers flat in January through March even though the crop yield historically increases in January and February and peaks in March (Figure 3). If the available agricultural labor pool shrinks further, the yield plateau could shift further down in future years.

Labor shortages coupled with higher costs and stiff market competition are forcing growers to reassess their overall business plans. When asked whether they were planning to downsize their strawberry operation in the next three years, 21% of growers said yes. The majority of them were small growers (Table 2). These growers will likely exit the industry eventually if the labor issues and financial challenges persist.

Grower Perceptions on Labor and Immigration Issues

Unauthorized Labor Force

For decades Florida strawberry farms have relied on immigrant workers, in particular Mexican workers, to perform the labor intensive field tasks. Nearly all growers believed that the vast majority of workers of the industry were not legally authorized to work in the United States (Guan, Wu, and Whidden, 2013). Half of the surveyed growers believed that the unauthorized workers accounted for 90% of the industry work force. Only one-fifth of the growers believed that the unauthorized workers were less than 70%. The growers' estimates of unauthorized workers are higher than the data reported by the National Agricultural Workers Survey (NAWS) which found that 53% of the farm workers across the United States were not legally authorized to work (USDA/ERS, 2014). Given that the NAWS relies on farm workers to *self-report* their legal status, it is likely that the percentage of unauthorized workers in Florida is in fact closer to the growers' estimates. However, even if one assumed the more conservative NAWS estimate as accurate, aggressive federal and/or state immigration policies would have a significant impact on farm labor availability for specialty crop growers like strawberries.

Grower Concerns about E-Verify

E-Verification is an evolving technology that allows an employer to check at the time of hire whether a prospective worker is legally authorized to work in the United States. A negative answer from an E-Verify inquiry gives an employer "constructive knowledge" that a specific individual may not be authorized to work. If the employer ignores this E-Verification result, the employer risks fines and potentially criminal prosecution from violating federal immigration laws. Given the perception of the

high number of unauthorized workers currently working on strawberry operations, it was not surprising that no Florida strawberry growers wanted E-Verification to become mandatory for the industry. A number of states in the United States—such as Alabama, Arizona, Georgia, Mississippi, and South Carolina—have required use of E-Verify in private sectors. In 2011 the Florida legislature seriously debated a bill mandating E-Verification for all businesses. It was brought to a vote on the last day of the legislature and failed to pass by only one vote (Roka, 2012).

Grower Perceptions about the H-2A Program

Growers across the United States are turning more and more to the H-2A program due to labor shortages, where foreign agricultural workers can be hired on a temporary work visa. The condition for H-2A hiring is that the foreign workers do not take jobs away from legal U.S. workers and do not adversely affect the wages of U.S. workers doing similar jobs. It requires employers to pay at least the “adverse effect wage rate” (AEWR), a wage rate that is deemed high enough to protect domestic workers. The Florida AEWR rate in 2012 was \$9.54/hour, nearly \$2 per hour above the Florida minimum wage (\$7.67) for domestic workers. H-2A employers pay for all the administrative costs involved with the Visa and recruitment process as well as providing housing and transportation—such as, round-trip tickets from workers’ home towns as well as local transportation to job sites, grocery stores, and religious services—at no cost to the workers. The Program also requires H-2A employers to offer the same benefits to domestic workers doing similar tasks on the farm, which appeared to be another hurdle for growers to adopt the program.

Most Florida strawberry growers reported that the current H-2A Program is “cumbersome and expensive” and needs to be “overhauled” (Guan, Wu, and Whidden, 2013). While many growers in other specialty crops concur with this opinion, the strawberry grower reaction may be in part a result from lack of experience with the H-2A program. Only one Florida grower surveyed hired H-2A workers during 2012 while none of them have had any experience with the Program. Citrus growers in Florida have successfully embraced the H-2A program despite the cost and bureaucratic complexities. More than 50% of the 2014-15 citrus crop in Florida was harvested by H-2A workers (Carlton, 2015). Citrus has a longer harvest season and more consistent weekly work schedules, which makes the H-2A program relatively more attractive. A consistent message from leaders of commodity associations and growers familiar with the H-2A program is that it takes a dedicated effort on the part of an agricultural employer to effectively utilize H-2A workers, and that this effort must be sustained for at least three years to become more efficient with the application and recruiting process as well as building a productive H-2A work force (Carlton, 2015).

While the H-2A program was not popular among Florida strawberry growers, 41% percent of growers indicated that they were nonetheless considering the H-2A program as a means of securing additional workers in the coming years as that seemed to be

Table 3: Number of H-2A Applications and Certified Positions by the U.S. Department of Labor

Fiscal Year (FY)	2010	2011	2012	2013	2014
Certified H-2A applications					
US	6,988	7,000	7,845	8,118	6,476
FL	51	54	78	108	na
Certified H-2A positions					
US	79,011	77,246	85,248	98,821	116,689
FL	4,432	5,741	6,945	10,051	13,544
FL Adverse Effect Wage Rate (\$/hr)	\$9.20	\$9.50	\$9.54	\$9.97	\$10.26

the only option available. Large growers were more likely to pursue H-2A workers than small growers (Table 2). The intention to use H-2A workers, albeit reluctantly, is consistent with the observed national trend in the use of H-2A program. Between 2010 and 2014, the total number of “certified” H-2A workers across the United States increased by 48%, from 79,011 to 116,689; that number in Florida tripled, from 4,432 to 13,544 (Table 3).

Possible Solutions

Strawberry growers perceive labor shortages as a major threat to their industry resulting from a failed immigration policy. Economic theory suggests that there would be a wage threshold above which legal domestic workers could be recruited to work in strawberry fields. It is not clear, however, the extent by which agricultural wage rates have to increase before a sufficient number of legal domestic workers could be recruited to hand harvest agricultural crops. The 2015 Florida hourly minimum wage of \$8.05 does not appear to be sufficiently high. Evidence from H-2A citrus harvesting companies suggests that a wage rate of \$10.26 per hour plus housing and transportation benefits are not sufficient either. In 2012, nine citrus harvesting companies collectively recruited 2,882 people through the H-2A program. Only 174 (6%) of these positions were held by domestic workers and only 80 (46%) of the hired domestic workers stayed on the job beyond the third week of the contract period. In 2013, the same nine citrus harvesting companies recruited 2,971 H-2A positions of which only 56 (2%) were domestic workers and only 13 (23%) of those workers lasted beyond the third week of the contract period (Roka, 2014). A recent survey in Mexico by Wu, Guan, and Arana-Coronado (2014) indicated that the average wage of general agricultural field workers was approximately \$1 per hour while the minimum wage in Florida was \$7.93 per hour; and the piece rate for picking was approximately \$0.80 per flat of strawberries in Mexico while it was about \$2.50 in Florida. Given the wage difference and the rapid increase in imports of Mexican strawberries, a large increase in Florida wage rates has the potential to further undermine the competitiveness of the Florida industry.

Labor shortages, increasing labor costs, and competition from lower-cost Mexico strawberries naturally point to the use of labor saving technologies such as mechanical harvesting. Mechanical harvesting of strawberries is challenging because the fruits are delicate and ripen at different times. These features require technology to recognize only ripe strawberries and handle them delicately enough to prevent bruising. Currently, a major commercial grower and shipper in Florida is investing to develop a prototype of a robotic picker which can be used under current production practices (Tampa Tribune, 2015). Californian companies are also developing and experimenting with mechanical harvesting technologies. Advances in visioning technology and fruit handling systems developed in other industries provide some optimism that a cost-effective mechanical harvesting system is achievable in strawberries. Mandatory E-Verification would likely speed up the pace of research and development. Nevertheless, the arrival of a cost-effective commercial harvesting system likely is years away and the industry has to deal with labor issues today. Consequently, strawberry growers must deal with the current situation which involves a choice between largely illegal domestic workers or a more expensive and bureaucratically challenging foreign guest worker program.

Can comprehensive immigration reform fix agricultural labor problems? It is likely that E-Verify and tighter controls at the United States and Mexico border will be part of any future legislation on immigration reform. By themselves, these policies could restrict the long standing flow of Mexican and other Central American workers traveling into the United States to do agricultural jobs. For this reason, agricultural leaders in Florida argue that it is imperative to include a viable foreign guest worker program as part of any comprehensive immigration reform legislation. In the opinion of many growers across all labor intensive crops, the current H-2A program is cumbersome, and its higher costs further compromise their competitive position in the face of imported fruits and vegetables. The extent to which the costs of hiring foreign guest workers can be reduced will be a matter of public debate.

Until comprehensive immigration reform is realized, strawberry growers in Florida will have to negotiate the H-2A program as it currently exists. The fact that their counterparts in the citrus industry are employing a significant amount of H-2A workers suggests that the bureaucratic challenges are not insurmountable. However, some adaptations may be necessary to make the H-2A program cost-feasible for their operations. The survey by Guan, Wu, and Whidden (2013) showed that most growers produce only strawberries, which implies a significant cost to maintain a large labor force that is needed for only February and March, the peak time of berry harvest. If a grower could diversify his/her crop mix, the potential contract period for H-2A workers could be extended, and labor demand among the weeks of the contract period could be smoothed. A longer contract period and the ability of harvesting more units of crops could help to spread the significant fixed costs of the H-2A program, which include visas, petition filings, in-country recruiting, in-bound/out-bound transportation, and adequate worker housing facilities. Another possibility is to utilize farm labor contractors who have diversified across crops with different harvesting period. Again, a longer contract period and more consistent weekly work schedules could lower overall costs from utilizing H-2A workers, which would make the program more attractive to growers. But still a less bureaucratically challenging, more economically feasible H-2A program would be essential to address the labor needs and sustainability of the industry.

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