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The State of the Agricultural Workforce in New York

Richard Stup, Agricultural Workforce Specialist,
Cornell College of Agriculture and Life Sciences

Jennifer Ifft, Assistant Professor and Mueller Family Sesquicentennial Faculty Fellow in Agribusiness and Farm Management, Charles H. Dyson School of Applied Economics and Management at Cornell University

Thomas Maloney, Senior Extension Associate, Charles H. Dyson School of Applied Economics and Management at Cornell University

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Charles H. Dyson School of Applied Economics and Management
College of Agriculture and Life Sciences
Cornell University, Ithaca, NY 14853-7801

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Introduction

The agricultural workforce is critically important to the current and future success of New York's agricultural industry and, by extension, rural communities across the state. The workforce is very diverse with people from many cultures, languages, experiential and educational backgrounds, and job types all contributing to the agricultural economy and to our local, regional, and international food networks. This publication summarizes the current state of New York's agricultural workforce based on available data, research reports, and the knowledge of the authors. It also provides a brief review of previous research into the effects of new overtime requirements.

Why is Agriculture Important?

Agriculture contributes over $5.4 Billion dollars to the New York State economy (DiNapoli, 2015). Most of that income is concentrated in rural areas of the state that may lack other sources of income. The money is circulated in small towns and communities where it supports other businesses and jobs. Farms directly create jobs in rural communities, and support other economic activities that create even more jobs. Of course, the farms of New York produce fresh, quality, local food to support the health and well-being of all New Yorkers.

Why is the Agricultural Workforce Important?

Modern agriculture depends on people to make it run. From large dairy operations that help to grow our yogurt industry to local vegetable farms that depend on seasonal labor, the agricultural workforce is essential to farms of all kinds in our state. Farms differ dramatically in how much labor they use depending on their type of production. Fruit and vegetable farms depend on more labor than dairy farms and much more than grain farming. Table 1 depicts how labor makes up a different share of total operating expenses for different types of farms. Nurseries, fruit, vegetable and dairy farming are all important in New York and highly dependent on labor, beef cattle ranching and grain farming are more typical of Midwestern states, more mechanized and less dependent on labor.

Table 1. Labor's share of operating expenses for selected agricultural sectors in the U.S. (Zahniser, 2018).

Sector	Share of total operating expenses		
	Contract labor*	Hired labor	Total (contract plus hired)
Greenhouse, nursery, and floriculture production	2.8	37.6	40.4
Fruit and tree nut farming	14.7	24.0	38.7
Vegetable and melon farming	8.3	18.8	27.1
Dairy cattle and milk production	0.5	9.6	10.2
Beef cattle ranching and farming	1.0	4.9	5.9
Oilseed and grain farming	0.5	4.0	4.5

* Contract labor is defined as workers indirectly hired through farm labor contractors.

What Types of Farm Employers are in New York?

According to the 2012 USDA Census of Agriculture (www.nass.usda.gov), the most recent data available, New York had 35,537 farms, with 18,652 in crop production and 16,885 in animal production. Most farms in the state (34,356) were family-owned and family members worked in all types of positions. The state's farms were operated by 55,970 principal farm operators, and of that group 37,220 were men and 18,750 were women. Over 12,000 of them were younger than 44 years of age. Table 2 provides a summary of the 35,537 farm businesses in New York by farm type, quite small operations such as small hay farms are included in this data and account for the relatively large number of "other crop farms."

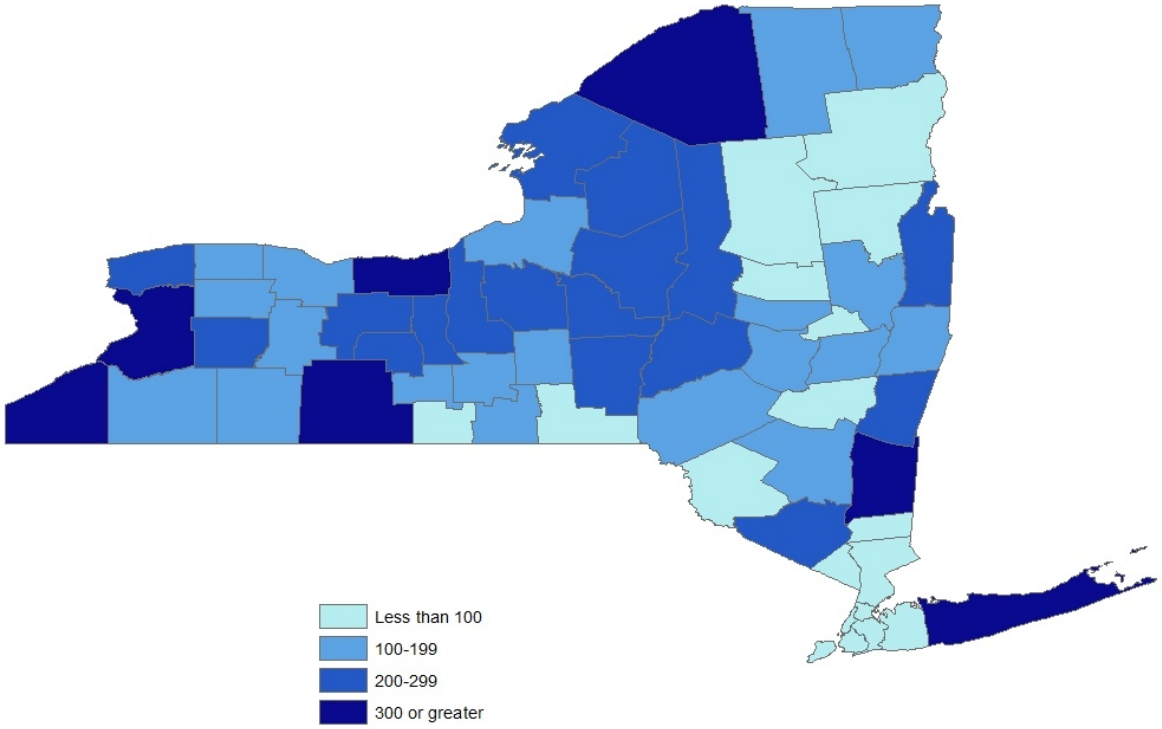
Table 2. Number of farms in New York by farm type. (2012 USDA Census of Agriculture)

Farm type	Number of operations
Other crop farms (includes hay farms)	9,335
Dairy farms	4,694
Beef farms and feedlots	4,596
Horse farms	4,079
Oilseed and grain farms	2,686
Greenhouse, nursery, and floriculture operations	2,322
Fruit and tree nut farms (includes grapes)	2,278
Vegetable and melon farms	2,031
Sheep and goat farms	1,120
Poultry and egg farms	882
All other animal operations	846
Hog farms	422
Apiculture operations	187
Aquaculture farms	59

Not all types of farms depend on hired farm employees in the same way. As we learn from Table 1, greenhouses and nurseries, fruit, vegetable, and dairy farms all have relatively high expenditures for labor and these industries also have the largest numbers of hired farm employees. Farms that produce commodities such as hay and grains are more mechanized and less dependent on labor.

Figure 1 provides a visual display of how the number of farm operations with hired farm employees are distributed across the state. The darker shaded counties represent those with higher numbers of farm employers and roughly correspond with concentrations of dairy, fruit, vegetable, and nursery operations.

Figure 1. Number of farms with hired farm employees. (2012 USDA Census of Agriculture)



What is the Nature of Farm Jobs in New York?

Farms in New York vary in the types of jobs they offer. The size of the farm business and the kind of products grown or produced are major factors determining the nature of the workforce. Farms are small businesses and they typically offer jobs that fit into three general types: senior- and middle-managers, and frontline employees. Senior managers are often also owners and they are responsible for overall strategy and management of the business. Middle managers are skilled employees who use their specialized knowledge and make decisions in the production of crops and livestock, they often are responsible for supervising other employees. Senior- and middle-managers are usually year-round jobs on all types of farms.

Frontline employees perform most of the physical and hand labor that farm work still requires. In dairy farms most frontline jobs are year-round but there are also some jobs in crop production that are more seasonal in nature. In fruit, vegetable, and crop farms many frontline jobs are seasonal. For example, an apple orchard may have a small group of workers who start production by pruning trees in February and March, then continue with fertilizing, spraying, and other general farm tasks in the spring and summer months. Apples become ready for harvest and packing in the fall, but harvest is too much work for the small group of employees who started in late winter and worked through the summer. A large group of employees must be assembled in the fall to harvest apples and other tree fruits. Vegetable farms may need a relatively large group

of employees starting in the spring for field preparation and planting, and that large group may be needed all summer and into fall for ongoing weeding, spraying, fertilizing, harvesting, processing and packing of the vegetables.

What are the Sources of Hired Farm Labor?

While most farms are family owned and operated in New York, the families do not provide all of the labor. Like other small businesses, farms grow over time to stay competitive and help meet the business goals of the family. This growth creates jobs and stimulates economic activity, a critical process for rural communities that have a limited number of employment generators. The farm workforce is not measured by the U.S. Bureau of Labor Statistics so we must rely on other sources to help describe it. Again, the best source is USDA's Census of Agriculture. Table 3 is a snapshot of hired farm labor in New York.

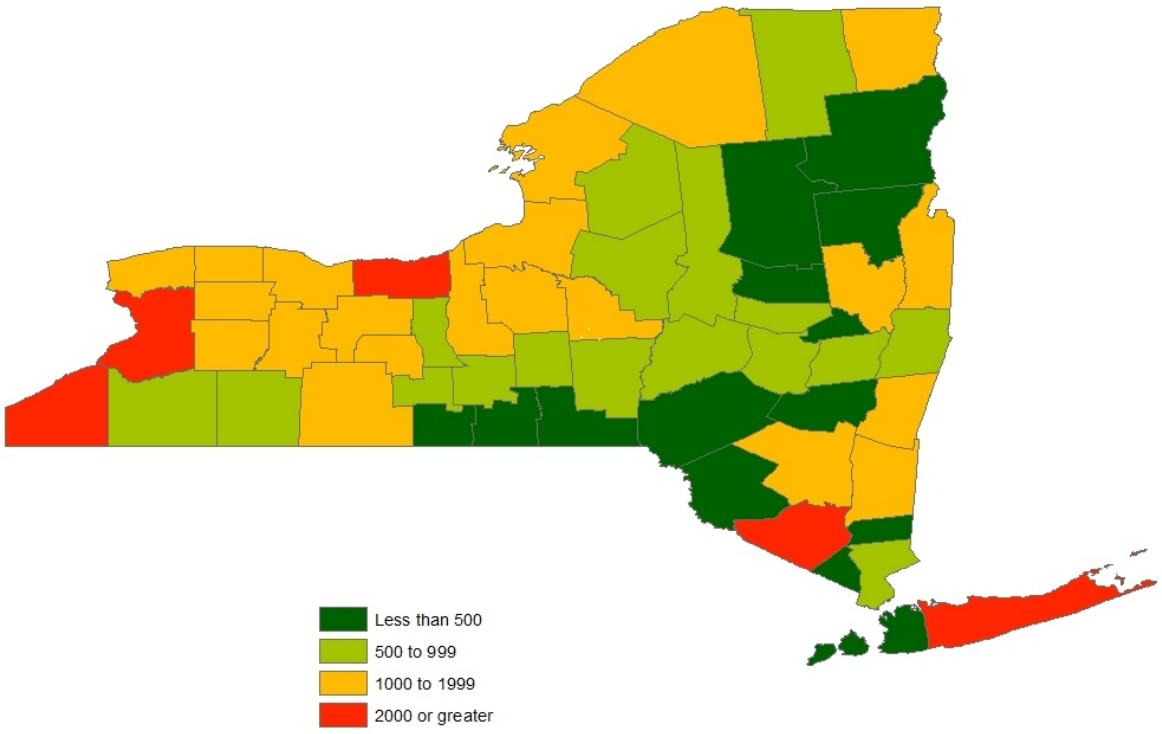
Table 3. Hired farm labor in New York (2012 USDA Census of Agriculture).

Labor type	Number of farms	Number of workers
Hired farm labor	10,345	60,944
Hired workers employed 150 days or more	5,990	27,148
Hired workers employed less than 150 days	7,304	33,796
Migrant labor on farms with hired labor	807	Data not available
Migrant labor on farms reporting only contract labor	48	Data not available

Note: Migrant farm labor means that the employment required travel that prevented the worker from returning to his/her permanent residence on the same day.

Figure 2 below provides a visual representation of where the highest numbers of hired farm employees are concentrated and how workers are distributed across the state.

Figure 2. Number of hired farm workers in New York by county. (2012 USDA Census of Agriculture)



Local Labor

Local labor is a very important part of the agricultural workforce. Many farms hire local employees for frontline and middle manager jobs. In many cases farms and organizations engage with local communities and organizations such as FFA (National FFA Organization, formerly Future Farmers of America) to create interest among young people in agriculture and build local job pipelines of new employees. Various efforts are underway to strengthen public knowledge of agricultural career opportunities and increase the flow of prospective farm employees. Cornell University has programs in place for dairy apprenticeships and for training employees in controlled environment agriculture. Cornell's Small Farms program provides leadership skills training in English and Spanish for prospective supervisors and has led efforts to help refugees find employment in agriculture. Finger Lakes Community College is offering an associate's degree in viticulture and wine technology to help develop the wine industry workforce.

Unauthorized Labor

Unauthorized labor forms a significant part of the agricultural workforce, the National Agricultural Worker Survey (NAWS) found that 49% of the hired crop workforce in the U.S. was not authorized to work (Hernandez & Gabbard, 2018). Farmers seek out any employees who are available in their local labor markets. There are many in the local labor markets who were

born in other countries such as Mexico and Guatemala. Farmers, like all other employers, must comply with the federal government requirement to determine that prospective employees are authorized to work in the U.S. If applicants are from another country but have documentation that authorizes them to work and they are qualified, then many of them will be hired on farms. Employers cannot legally discriminate against job applicants who appear to be from another country. In reality, many foreign employees in the domestic labor market have improper documents but employers must accept documents that appear to be authentic and relate to the job applicant.

The Pew Research Center estimates that unauthorized immigrants make up about 24% of the overall agricultural workforce in the U.S. (Pew 2018). We have no specific data for New York but we also have no reason to believe this percentage is greatly different in New York versus the U.S. as a whole. Pew also reports that the overall unauthorized immigrant population in New York declined by over 25% from about 1,000,000 people in 2007 to 725,000 in 2016. These trends help to explain farm employers' frequent observation that the availability of immigrant workers is much lower than in previous years.

Temporary and Seasonal H-2A Labor

Some farms, orchards and vineyards require a temporary or seasonal workforce. Examples include vineyards that need pruning during the spring and summer, orchards that need a large amount of help for the fall harvest, and dairy farms that need skilled machine operators and truck drivers for crop operations. If a farm can demonstrate that they have a labor need and can't find enough help locally, then they may qualify for a federal program to bring in labor from another country to meet the temporary or seasonal need. This long-standing program is known as the H-2A Temporary Agricultural Visa program (https://www.foreignlaborcert.doleta.gov/h-2a.cfm). New York has a long and often successful history with H-2A, it is common for some H-2A employees to return to the same farm for 20 or more years.

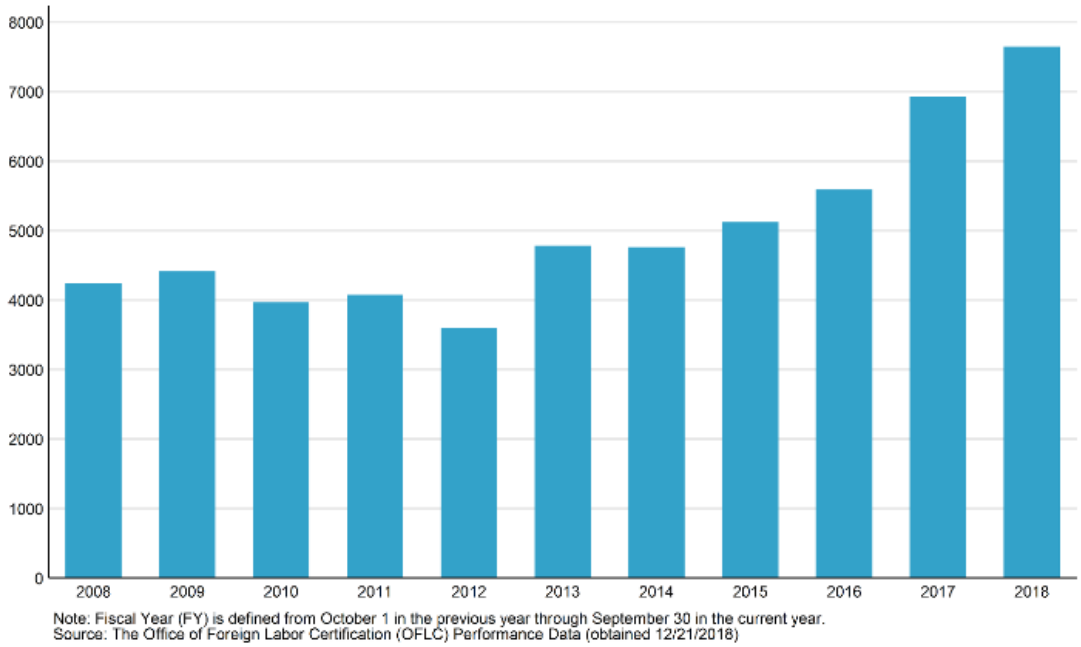
Growth of the H-2A Program

Given increasing labor shortages, New York farms are continuously seeking new labor sources. The H-2A program provides the only lawful admission to the U.S. for temporary, nonimmigrant seasonal agriculture workers. H-2A is not a simple solution for farm employers, it involves significant regulatory and administrative barriers that discourage many employers from using the program. These barriers include the requirements to document a labor shortage, state inspections of employee housing, the cost of recruiting foreign workers, federally mandated minimum wage rates, provision of all housing and transportation for employees while in the country, and transportation both from and to the home country at the beginning and end of the work period. In spite of these barriers, many employers say that the reliability of the H-2A workforce is worth the additional effort and cost.

The past 12 years witnessed a quadrupling of H-2A employment nationally (USDA-ERS, 2018). To better understand the impact of the H-2A program in New York State, we analyzed H-2A

applications using available data[1] from FY 2008 to FY 2018[2]. The number of H-2A positions approved in New York State increased by 80% from FY 2008 to FY 2018, as shown in Figure 3.

Figure 3. Number of H-2A positions approved to work on New York farms from 2008 to 2018.

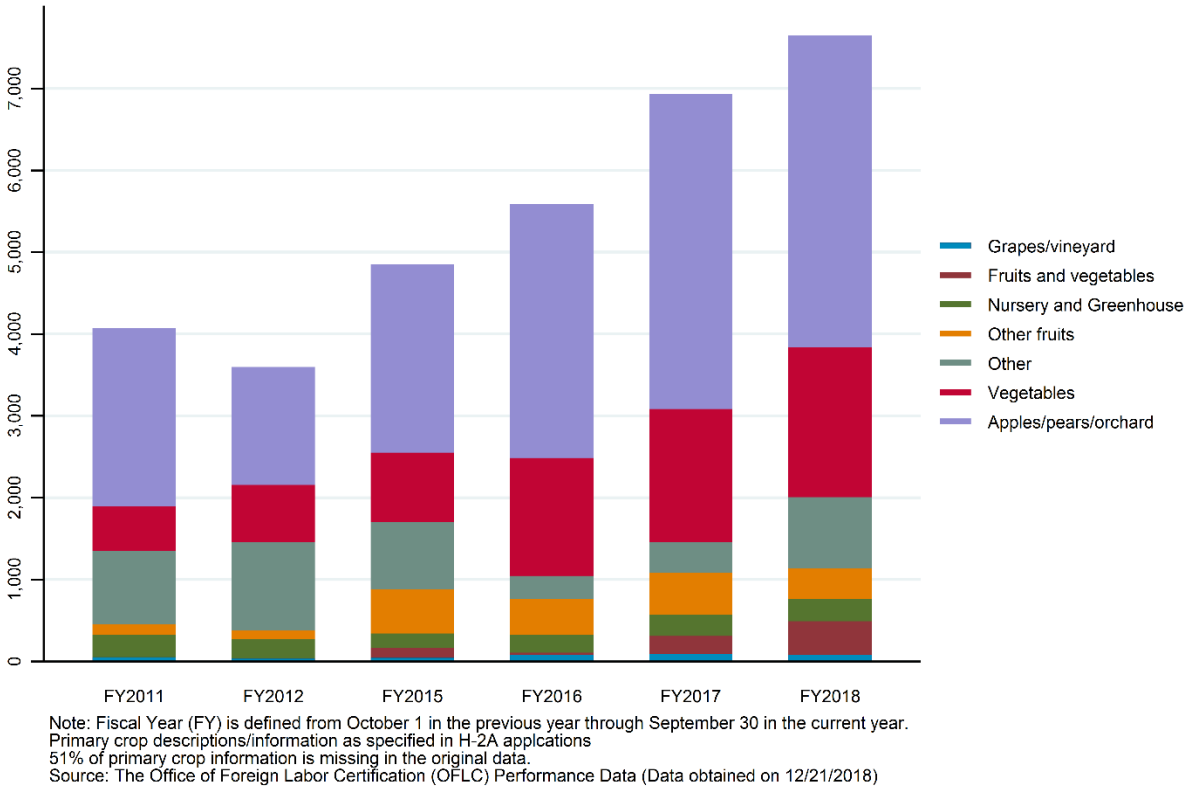


The length of working period approved and rate of application approvals didn't change significantly over this time. Generally, time certified per worker ranges from five to seven months, and almost all H-2A applications (99% of total applications) were approved in the past 12 years. H-2A workers were employed in all of the leading fruit and vegetable crops in New York. Figure 4 presents the distribution of New York's' H-2A employees by the primary crop grown.

[1] Data Source: United States Department of Labor-OFLC Performance Data; United States Department of Agriculture-National Agricultural Statistics Service; New York State Department of Labor-Minimum Wage Standards for Farm Workers

[2] Fiscal Year (FY) is defined as from October 1 in the previous year through September 30 in the current year. Data obtained on 12/21/2018.

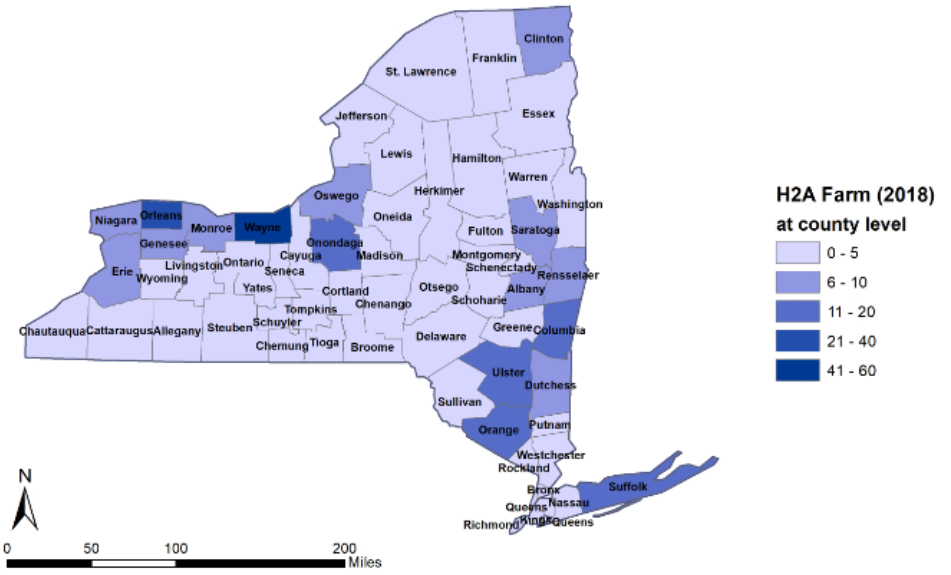
Figure 4. Number of approved New York H-2A employees from 2011 to 2018 by primary crop.



Note: Fiscal Year (FY) is defined from October 1 in the previous year through September 30 in the current year.
Primary crop descriptions/information as specified in H-2A applcations
51% of primary crop information is missing in the original data.
Source: The Office of Foreign Labor Certification (OFLC) Performance Data (Data obtained on 12/21/2018)

Farms that employ H-2A employees are found across the state but there are certainly counties with higher concentrations. Concentrations of farms using H2-A correspond with the fruit and vegetable producing regions as presented in Figure 5.

Figure 5. Map of New York farms using the H-2A guest worker program in 2018.



Note: Fiscal Year (FY) is defined from October 1 in the previous year through September 30 in the current year;
Source: The Office of Foriegn Labor Certification (OFLC) Perfromance Data (Data obtained on 10/01/2018)
Projection Infromation: NAD 1983 State Plane New York Central FIPS 3102 Feet

How are Farm Employees Compensated?

Farm employee compensation is a topic of much interest to farm operators, employees, and other stakeholders. There are several sources of data that help us to develop a clearer picture of farm employee compensation.

USDA's National Agricultural Statistics Services (NASS) publishes a farm labor report two times each year. This report includes wage rates for farm employees broken out by field and livestock operations and by region of the country. New York and the New England states make up the Northeast I region for this report. In the October 2018 report, NASS lists average hourly wage rates for Northeast I field employees as $13.58 and for livestock employees as $12.81. Note that this hourly wage rate reflects regular pay only and does not include the value of any bonus pay or benefits provided to employees.

Farm employers are, of course, subject to the same minimum wage laws as all other New York employers. Most farms are in upstate New York where minimum wage currently stands at $11.10 per hour, and in Long Island where minimum wage is at $12.00 per hour. These wages will continue to increase each year until they reach $15.00 per hour.

Farm employees typically receive a whole compensation package in addition to regular pay in the form of hourly or salary-based compensation. Total compensation includes any bonus or incentive pay received by employees and the value of other benefits received. In 2018, the Cornell Agricultural Workforce Development program conducted a benchmark study to better understand how farm employees are compensated. Data collection was open to farm employers

who wanted to participate and compare their compensation package to other farms. The study was not designed to be random or representative of New York farms but it does shed light on the typical compensation practices that farm employers use. Table 4 provides a summary of the total compensation packages, average hours worked, and calculated total compensation received by full-time frontline employees and managers in the benchmark project. (Access the full report here: http://agworkforce.cals.cornell.edu/research-reports/)

Table 4. Average tenure, compensation and hours worked for full time employees in the 2017 Farm Employee Compensation Benchmark.

	Employee type	
	Frontline employees	**Managers**
Tenure with current employer, years	7.2	11
Annual wages	$38,250	$47,881
Bonus or incentive	$1,440	$2,561
Total value of benefits	$6,758	$9,387
Total compensation	$46,399	$59,764
Total hours worked	2,787	2,696
Wages per hour	$13.93	$17.93
Total compensation per hour	$16.90	$22.48

H-2A employees are a special case as they are temporary contract employees, not regular "at-will" employees like most others. The U.S. Department of Labor calculates and establishes a minimum pay rate that is intended to discourage farm employers from bringing in low-paid foreign labor that would adversely affect domestic employees, this special H2-A wage rate is called the adverse effect wage rate (AEWR) and it varies by location across the country. For New York the 2018 AEWR was $12.83 per hour and the published rate for 2019 is $13.25 per hour (See U.S. Department of Labor's website: https://www.foreignlaborcert.doleta.gov/adverse.cfm).

How Many Hours Do Farm Employees Work?

Full-time frontline employees in the 2017 Farm Employee Compensation benchmark worked on average about 2,787 hours per year and managers worked about 2,696 hours per year. Based on 50 weeks worked in a year this would equal about 56 hours per week for frontline employees and 54 hours per week for managers. Some farm employees work far more hours, the highest reported employee had 4,242 hours in 2017, or over 80 hours per week (Stup, 2019).

In their 2016 survey of Hispanic dairy employees in New York state, Maloney, Eiholzer and Ryan (2016) asked employees three questions about the hours they worked per week: 1) how much they actually worked, 2) how much they would like to work, and 3) the minimum hours they need to work in order to keep them from looking for another job. They found that employees "insisted on working at least 57 hours per week, are actually working 67.2 hours per week, and would like to work 67.6 hours per week." Because the hours actually worked and hours they wanted were nearly identical, the researchers concluded that employees were already getting the number of hours they wanted.

Work hours in highly seasonal agricultural sectors such as fruits and vegetables are a special situation. Because of the perishable nature of these crops and the variability of weather, farm work sometimes must be completed when the opportunity is available. Consider vine crops such as summer squash for example, these crops must be harvested 2 to 3 times a week when they are ready (Schultheis, 2005). Fruiting crops such as apples and grapes are ready at optimal times, when the weather is right, growers must harvest no matter how many hours of labor it takes. Harvests delayed by labor issues can result in reduced farm profitability, lower quality produce, or even loss of an entire crop (Calvin & Martin, 2010). Even dairy farms that grow crops to feed their cattle must work long days when weather and crop schedules permit.

What Impact Might Overtime Have on the Workforce?

Given the seasonal demands of farming and reported worker demand (Maloney, Eiholzer and Ryan 2016), many farm employees work more than 40 hours per week and would be affected by overtime regulations. If overtime hours do not change, employees will receive higher income under mandatory overtime. However, if farms (1) decrease hours through downsizing or mechanization or (2) hire additional employees, the impact of mandatory overtime on take-home wages is indeterminate. Recent studies suggest that employers would be under pressure to take these types of actions under mandatory overtime, due to substantial decreases in farm income if hours were to be held constant. Wells and Ifft (2017) considered the impact of overtime on New York fruit farms and found that wages could increase up to 19 percent depending on rules and that farm costs could increase substantially. Farm Credit East (2019) recently estimated that farm income could decline over 23 percent due to combined minimum wage and overtime rules.

Although there is very little direct evidence from the farm sector, other studies have considered the impact of overtime regulations in other industries. Results are mixed--most research suggests a decline in hours worked with overtime legislation--with the main exception being a study using annual time series data from the 70s and 80s. Specifically, the increase in the proportion of employees covered under the Fair Labor Standards Act (FLSA), which requires covered employees to be paid more for their overtime, did not reduce overtime incidence and overtime hours in several industries, including agriculture (Trejo, 2003).

Hamermesh and Trejo (2000) found that the extension of overtime law to male workers in California in 1980 led to a substantial decline in daily overtime, but the agricultural sector was excluded from their analysis. To compensate for shorter workdays, California men worked more days per week according to data from 1973, 1985 and 1991. Supporting this, Friesen (2001)

found that overtime pay regulation leads to moonlighting by analyzing the 1997 Canadian Labor Force Survey. To compensate for declining hours, employees often respond by picking up part-time second jobs (Boudreaux, 2016). Likewise, farm employees may choose to work 2nd or 3rd jobs if there is a reduction in work hours with their primary employer. The German manufacturing sector data for 1994 and 1996 shows that overtime work responds to short-term shocks (Jirjahn, 2008). Despite new overtime regulations, overtime might still be used in response to short-term needs, such as harvesting.

Overtime laws may have a greater impact on minimum-wage employees, partially due to higher prevalence of a 40-hour work week in the U.S. (Trejo, 1991). This is especially true in the farm sector, where front-line employees often work in excess of 40 hours a week. Overall, the economics literature suggests that a variety of responses to overtime laws are possible. The net benefit to farm employees is uncertain over the long-run, given that reduction of hours or shiftwork is an option that farm employers may need to consider to remain profitable.

What is the Nature of Employer-Provided Farm Employee Housing?

Housing varies widely depending on the type of farm and type of labor used. Local workers who work year-round and in all sectors of agriculture most commonly do not receive farm employer-provided housing, they typically live in the local communities and find their own homes. However, almost 40% of full-time farm employees received farm-provided housing as a benefit in the 2017 Farm Employee Compensation Benchmark (Stup, 2019). Farms that have grown over the years often own adjacent farms that include a house, it is common for a farm employer to provide that house to a local employee as part of his or her compensation. It is also not uncommon for farm employers to assist their key local employees to finance and purchase a home of their own.

Foreign born employees often require employer-provided housing because they do not own a home locally and they frequently have difficulty finding properties to rent. It is now also a customary and long-established practice for farms to provide housing as an employment benefit for their foreign born employees. Maloney, Eiholzer, and Ryan (2016) found that among Hispanic dairy farm employees 79% had housing fully provided by the farm, 8.8% shared the cost of housing with the farm, and 12.2% provided their own housing. The quality of farm-provided housing varies widely. There certainly have been incidents of poor quality, farm-provided housing situations that have been reported in the popular press. Fortunately, this is not the norm, based on the author's own experience visiting farm employee housing, much farm-provided housing is of similar quality to other rental properties and some is newly constructed or recently remodeled and of excellent quality.

Housing provided for permanent, year-round farm employees is regulated by the building and fire safety regulations that govern most other types of housing in the state. Most housing problems stem from poor communication and unclear expectations between farm management and housing occupants (Dudley, undated). These communication problems can lead to serious issues such as poor housing sanitation and delayed property maintenance. Cornell Agricultural Workforce Development is working with the industry to develop training and management

programs that address the ongoing need for better housing management, maintenance and sanitation (Find more here: http://agworkforce.cals.cornell.edu/human-resource-management/worker-housing/). The Cornell Farmworker Program developed Creating Positive Workplaces: A Guidebook for Dairy Producers (Find it here: https://cardi.cals.cornell.edu/sites/cardi.cals.cornell.edu/files/shared/CreatingPositiveWorkplaces-AGuidebookforDairyProducers%20November%202017.pdf)

Housing provided for migrant and seasonal employees, including H-2A employees, is strictly regulated by federal and state laws. This housing must be inspected annually in New York either by the NY State Department of Labor for housing with 4 or fewer occupants or by the local or NY State Department of Health for housing with 5 or more occupants. Regulations of migrant and seasonal housing must meet standards addressing the size, capacity, facilities, safety, and sanitation. Part 15 of the New York Sanitary Regulations covers migrant farm worker housing (Access Part 15 here: https://www.health.ny.gov/regulations/nycrr/title_10/part_15/).

What Challenges Face New York's Agricultural Workforce?

In recent years, a number of factors have made it difficult to retain qualified, productive employees on New York farms. At the same time labor costs have steadily risen. Farm owners face a number of labor challenges related to operating their businesses and they are discussed here.

1) Tight Agricultural Labor Markets

Attracting a steady supply of reliable and productive employees is one of the greatest challenges facing U.S. agriculture today. Recently a number of factors have combined to make recruiting and hiring qualified agricultural employees more difficult. After the economy recovered from the most recent recession, job growth in the United States increased and the unemployment rate dropped steadily, ending 2018 at 3.9% and creating significant competition for employees (U.S. Bureau of Labor Statistics, https://www.bls.gov/cps/). Farm employers now find themselves competing with other business sectors such as construction and transportation where jobs are being added and wages have traditionally been higher than those provided in production agriculture. While agriculture has employed many workers from Mexico in the last two decades the numbers of these employees have diminished due to an improving Mexican economy and decreasing birth rates (CoBank, 2018; Zahniser and Taylor, 2018). In addition, border crossings of undocumented immigrants looking for work have declined dramatically as a result of stepped-up U.S. border enforcement and risks posed by dangerous drug traffickers. These difficulties in attracting and hiring qualified agricultural employees combined with a steadily increasing New York State minimum wage are likely to continue to put upward pressure on farm employee wages.

2) Local Employees Not Interested in Farm Work

Farm employers indicate that finding domestic, local employees to do physically demanding farm jobs is difficult. Farm employers report that when they advertise for local employees in their communities there may be no applicants. Even if local job candidates do apply, farmers

report that many don't stay on the job for more than a day or two. Consequently many farm employers believe that foreign-born employees are the agricultural workforce of the future and want to focus their efforts on identifying and hiring those who come to the U.S. legally (Maloney & Eiholzer, 2017). More work is needed to help the agricultural industry become more competitive in attracting and retaining employees from local labor markets.

3) Adoption of Labor-Saving Equipment and Technology

One approach to dealing with tight labor supplies and increasing wage rates is the adoption of labor-saving technology. For decades farmers have invested capital in equipment and technology to reduce labor costs and make farm employees more productive and efficient. Farm owners will continue to adopt technology and mechanize to reduce the number of hired employees required (Calvin & Martin, 2010). However not all farm employers will be able to take advantage of new innovations because of their cost to the business. Capital remains a significant barrier to entry with the adoption of new technology. To invest in new equipment and technology the farm business has to either find the capital within the business or borrow the money to cover the upfront costs of technology adoption. Not all farmers possess the capital or the borrowing ability to finance large investments in labor saving innovations. For example, a robotic milking system that will handle approximately 60 cows currently costs about $200,000 (Salfer et al., 2017). So, if owners of a 500-cow dairy wanted to install a robotic system to replace the current milking staff, the upfront capital investment in the milking equipment alone would be more than $1.6 million. Since not all farm owners can afford these investments, technology adoption is likely to be gradual and limited to those who can access the capital required.

Conclusion

New York's agricultural workforce is extremely diverse across a variety of dimensions: culturally, linguistically, in educational status, in skills demanded, in residential patterns, in work schedules, and in working seasons. Yet, all sectors of agriculture share a common difficulty in securing enough employees to meet the demand for frontline, middle-manager, and senior-manager positions. Supporting the agricultural industry and the many employees who earn their livelihoods from it is crucial to the well-being of New York's agricultural workforce, its farm businesses, the job-creating food industry, rural communities, and the many New York citizens who benefit from a safe and local food supply.

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OTHER A.E.M. EXTENSION BULLETINS

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