

Nonfatal Agricultural Injuries in Florida: Animal Production¹

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Introduction

The animal production industry is one of the most hazardous industries in the United States. The Bureau of Labor Statistics (BLS) reported 189 fatalities and an estimated 4,670 nonfatal injuries in the animal production industry in 2019 (BLS 2021a).

The BLS investigates annual totals for injuries and fatalities but does not provide details that could be helpful to prevention efforts. Locally, nonfatal occupational injury data from the BLS are not available for Florida. Florida's animal production industry contributes over \$1.5 billion annually and involves cattle farming and ranching, as well as goat, horse, poultry, and swine farming. Additionally, the aquaculture industry brings about \$100 million annually.

Occupational injuries and illnesses create a financial burden for the employees, employers, farmers, and their families. Most agricultural injuries result in hospitalization, doctor visits, and lost time at work. According to a study conducted from 2011 to 2013 by the Central States Center for Agricultural Safety and Health (CSCASH), the average cost of serious agricultural injuries across seven states in the midwestern US was about \$8,000 (Johnson et al. 2021).

The purpose of this publication is to examine nonfatal injuries and illnesses in the state of Florida's animal production subsector. It is targeted to stakeholders, workers, and Extension educators/faculty in the industry.

Animal Production Subsector

The animal production industry is a subsector of the Agriculture, Forestry, and Fishing sector (Figure 1). The animal production subsector oversees the raising or fattening of animals, aquatic plants, and ornamental fish with the intention to sell them or their byproducts (US Census 2021). The National Institute of Food and Agriculture (NIFA) reports that these products, including livestock, meat, dairy, leather, and more, constitute over 50% of agricultural goods in the US and generate billions of dollars annually (USDA NIFA 2021). The activities carried out by workers in animal production, such as the keeping, breeding, and feeding of animals, can be highly hazardous, making agriculture one of the most dangerous industries to work in.

According to the BLS Survey of Occupational Injuries and Illnesses (SOII) conducted in 2019, the injury and illness rate per 10,000 full-time private industry workers in the US related to animal production was 211.5 (BLS 2021b). Table

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1 shows a breakdown of nonfatal injury rates among the specific industry groups within this subsector for 2019.

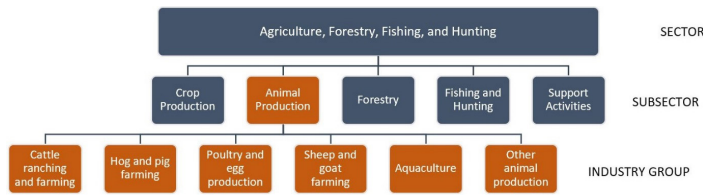


Figure 1. Hierarchical structure of the animal production subsector. Credits: Serap Gorucu, UF/IFAS

Table 1. Nonfatal injuries among animal production workers in the US, 2019.

Industry	Injury Rate per 10,000 Full-Time Workers
Animal production overall	211.5
Aquaculture	241.0
Cattle ranching and farming	231.1
Other animal production	195.0
Hog and pig farming	189.4
Poultry and egg production	138.0
Sheep and goat farming	N/A

Gathering such data about on-the-job injuries and illnesses is important because the data can be used by farm owners, managers, and employees to identify, mitigate, or eliminate hazards (Becker and Pirozzoli 1993). This report describes the incidences of injury/illness claims for the animal production subsector in the state of Florida and takes an initial step toward preventing similar occupational injuries in the future.

Methods

The Florida Department of Financial Services’ Division of Workers’ Compensation compiled data on Workers’ Compensation from 2010 to 2019. Agricultural industries in Florida are required to have Workers’ Compensation for six or more regular employees and/or 12 seasonal employees who work more than 30 days (FDFS 2022). Therefore, it is likely that the number of work-related injuries/illnesses among animal production workers is greater than the number of cases reported in this data set. Industries were classified by the 2017 North American Industry Classification System (NAICS). The NAICS code for the animal production and aquaculture subsector is 112.

Data on Workers’ Compensation include the date of each accident, if the injury resulted in death, nature of the accident, injured body part, cause of injury, city, state, county, zip code, and 4- or 6-digit NAICS codes. Over the study period, 3,947 claims were related to the animal production and aquaculture industries in Florida. Additionally, three

injuries that resulted in death and 13 injury claims with locations in other states were listed, but they were excluded from the final data set. Data analyses were conducted using Microsoft Excel and maps were developed using Tableau Desktop.

Results

From 2010 to 2019, 3,947 Workers’ Compensation claims were reported among workers in animal production (NAICS 112) in Florida, with approximately 394 claims filed per year (Table 2). Since 2010, there was a 26.4% decrease in the number of cases despite an increase in employment of 14.2%. Additionally, the injury claim rate decreased by almost 35%, from 889 claims to 573, per 10,000 employees. The claim rate was at its lowest point in 2016. Over the decade, there were no significant discrepancies between the numbers of injuries for each month. The number of claims per month ranged from 288 in November to 371 in March. Overall, claim rates per 100 employees were between the lowest (4.58) in 2016 and the highest (9.84) in 2012 (Table 2).

Table 3 presents the injury/illness claim distributions for the animal production and aquaculture industry groups. The cattle ranching and farming industry represents the majority (82.8%) of the total injury claims in animal production.

Claims by County

Figure 2 depicts the total number of injury claims by county from 2010 to 2019. Marion County has the highest number with 352 claims, followed by Duval County (n=266), Orange County (n=229), and Okeechobee County (n=205).

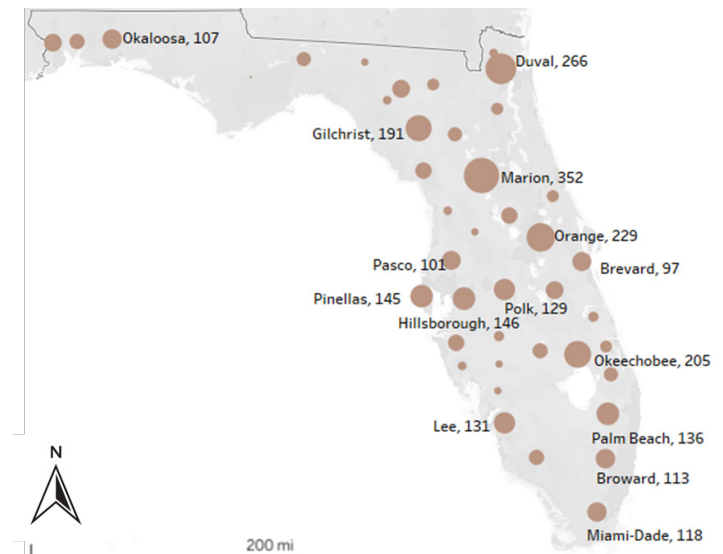


Figure 2. Map of total injury/illness claims by county. Credits: Serap Gorucu, UF/IFAS

Body Part Injured and Nature of Injury

The upper (e.g., arm, wrist; 28.4%) and lower (e.g., hip, leg; 26.6%) extremities were the most commonly injured body parts, comprising 2,170 of all injuries claimed. The trunk accounted for 1,030 (26.1%) of the injuries. The 442 claims reported involving multiple body parts and the 303 claims for the head and neck accounted for a combined 18.8% of claims. Body parts were not specified in the data set for two cases.

Regarding the nature of injuries, “strains or tears” occurred most frequently (n=1,400) (Table 4). This category made up almost three times as many claims as contusions (n=444), the second most common nature, followed by “sprain or tear” (n=423) and fractures (n=389). The remaining 40 injury types based on nature varied and comprise only one-third of the total injury claims.

Major Cause of Injuries/Illnesses

The “strain or injury by” category makes up the majority of injury causes (39.6%). Within this category, lifting resulted in the highest number of claims (n=766). Next, the “fall, slip, or trip injury” category accounted for 774 (19.6%) of the total causes of injuries, followed closely by the “struck or injured by” (19.4%) category. Table 5 provides more information about the causes of injury/illness claims.

Summary

In this study, we investigated nonfatal injury/illness claims for animal production workers in Florida from 2010 to 2019. The data provided a total of 3,947 injury/illness claims. Workers in the cattle ranching and farming industry generated the vast majority of claims (n=3,268). Over the ten-year study period, the number of injury/illness claims decreased by 26.4 percent.

Based on these findings, the body parts that are most at risk of injury are the upper (e.g., arm, wrist; 28.4%) and lower (e.g., hip, leg; 26.6%) extremities, which make up 55% of cases. Strains and sprains were the most frequently reported injury types in the animal production industry. Lifting, pushing, or pulling are routine tasks for animal production workers, and these types of tasks may cause strains or sprains (Miller and Brown-Reither 2015). Injuries occurred all year round. Injury and illness claims were not limited to a particular region in Florida, but most claims were made in Marion County.

Although Workers’ Compensation data can help us to identify specific details about injuries recorded through claims, the demographics and the narrative description of injury/illness cases were not provided in the data. This poses a challenge to building specific intervention programs. Additionally, based on Florida’s current reporting regulations, it is likely that the number of work-related health detriments that occurred exceeds the number captured by this source. Accurate and detailed surveillance to capture incidences of injuries among all animal production workers is critical for implementation of effective prevention programs.

Additional Information and Resources

OSHA, “Module 6—Hazards: Animal Handling and Farm Structures”: https://www.osha.gov/sites/default/files/2018-12/fy11_sh-22318-11_Mod_6_AnimalsInstructorNotes.pdf

Show Me Farm Safety, “Working with Livestock”: <https://farmsafety.mo.gov/livestock/>

UMASH, “Farm Safety Check: Livestock Facilities & Handling Safety”: <http://umash.umn.edu/farm-safety-check-livestock-facilities-handling-safety/>

PennState Extension, “Animal Handling Tips”: <https://extension.psu.edu/animal-handling-tips>

University of Missouri Extension, “Animal Handling Safety Considerations”: <https://extension.missouri.edu/publications/g1931>

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Table 2. Trends in employment and Workers' Compensation injury claims.

Year	Claims	Employment*	Claims per 100 Employees
2010	451	5,074	8.89
2011	486	5,285	9.20
2012	549	5,580	9.84
2013	372	5,740	6.48
2014	374	5,936	6.30
2015	349	6,148	5.68
2016	281	6,132	4.58
2017	376	5,828	6.45
2018	377	5,680	6.64
2019	332	5,793	5.73

*Employment data were obtained from the BLS Quarterly Census of Employment and Wages (BLS 2020).

Table 3. Injury/illness claims per industry group.

Industry Group	NAICS Code	Claims (n=3,947)	Percentage
Cattle ranching and farming	1121	3,268	82.8%
Other animal production	1129	494	12.5%
Poultry and egg production	1123	135	3.4%
Aquaculture	1125	47	1.2%
Hog and pig farming	1122	3	0.1%

Table 4. Top ten types (or natures) of injury/illness claims made in Florida, 2010–2019.

Nature of Injury/Illness	Claims (n)	Percentage
Strain or tear	1,400	35.5%
Contusion	444	11.2%
Sprain or tear	423	10.7%
Fracture	389	9.9%
All other specific injuries, NOC	284	7.2%
Laceration	183	4.6%
Multiple injuries	162	4.1%
Hernia	95	2.4%
Inflammation	89	2.3%
Occupational disease or cumulative injury	72	1.8%

Table 5. Number of claims filed in Florida (2010–2019) by cause of injury.

Cause	Claims (n=3,947)	
Strain or injury by(n=1,561; 39.6%)	Lifting	766
	Strain or injury by	321
	Pushing or pulling	228
Fall, slip, or trip injury(n=774; 19.6%)	Fall, slip, or trip, NOC	271
	On same level	206
	From different level (elevation)	141
Struck or injured by(n=767; 19.4%)	Animal or insect	376
	Falling or flying object	119
	Object being lifted or handled	107
Miscellaneous causes(n=282; 7.1%)	Other—Miscellaneous, NOC	133