



Bassett Healthcare Network
New York Center for Agricultural
Medicine and Health

New York State Agricultural Fatality Report 2019-2021

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Submitted by:

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Mission Statement

The mission of the New York Center for Agricultural Medicine and Health (NYCAMH) is to enhance agricultural and rural health by preventing and treating occupational injury and illness.

Introduction

Agriculture is historically one of the most dangerous industries in the United States, with the current fatality rate for farmers, ranchers, and other agricultural managers at almost five times the all-worker fatal injury rate [1]. In the United States, younger agricultural workers are nearly 45 times more likely to be killed than workers of all industries combined [2].

In New York State, over 33,000 farms are in operation, spread across almost seven million acres of land [3]. The agricultural community produces over \$4.8 billion in revenue each year, with half that going directly to New York's gross domestic product (GDP) [4]. Despite these impressive numbers, small farms often struggle for survival, and more than 2,000 farms went out of business from 2012-2017 alone [3]. Additionally, farmers are getting older, with the average age of NY farmers now exceeding 57 years old for the principal operator [5].

While the U.S. agricultural industry accounts for \$134.7 billion of the GDP, the above statistics, alongside the shrinking agricultural population, compound the necessity for research and mitigation regarding these high fatality rates. The rate of fatal injuries in the industry are indicative of issues endemic to improving farm health and safety as a whole, with psychological and economic ramifications rippling far beyond the confines of the affected farms, communities, and neighboring businesses.

To stay apprised of these trends, and with the goal of preventing future agricultural injuries, the New York Center for Agricultural Medicine and Health (NYCAMH) gathers agricultural fatality statistics on a yearly basis. Unlike the Census of Fatal Occupational Injuries (CFOI), which accounts for active agricultural laborers in their data, NYCAMH includes all instances of agricultural-associated fatalities, such as that of a child who was not actively working. As such, fatalities in this report are representative of the entirety of the agricultural sphere in New York State, encompassing farmers, farmworkers, children, bystanders, and victims of public roadway collisions involving agricultural equipment and vehicles.

Methods

NYCAMH uses an online press clipping service to routinely provide news coverage of agricultural fatalities in the Northeast region of the U.S. These are identified through keywords and verified through visual inspection by an information specialist before being uploaded to a database, where specific variables are then coded through the Farm and Agricultural Injury Classification (FAIC), Occupational Injury and Illness Classification System (OIICS), and North American Industry Classification System (NAICS) codes. Additionally, available narratives are recorded and appropriate files attached.

To further supplement the accrual of fatality records, reports are cross-referenced with several other sources of agricultural injury, such as the AgInjuryNews database and the New York State Census of Fatal Occupational Injuries (CFOI). Records were queried for the period between January 1, 2019 and December 31, 2021, and analysis was conducted through the use of Microsoft Excel. Descriptive statistics were developed based on a variety of factors, including age, gender, type of event, and source of injury.

Results

Overall, the findings for 2021 offer evidence that the fatality rate in the agricultural community continues to decrease (Figure 1). While 2019 recorded 21 agricultural fatalities in New York State, and 2020 presented an additional 15, we documented a total of seven fatal incidents in 2021. It should be noted that the NY CFOI program finalizes data on a different schedule; therefore, at the time of this report's completion, we have compared data for first quarter of 2021 only.

Historically, tractor rollovers are the leading cause of unintentional death in the agricultural community. Although that trend continues, over the last three years these numbers have dropped from four in 2019, to one in 2020, to two in 2021. Contact with objects and equipment and transportation incidents continue to be the primary source of agricultural fatalities into 2021 (Figure 2). Previous research has shown that agricultural truck and auto incidents represent a case fatality rate of nearly five times the rate of non-agricultural crashes [6]. In 2019, 16 agricultural deaths stemming from truck/auto incidents were identified. This number dropped in 2020 to 11, and reduced yet again in 2021 to three deaths due to farm-related auto accidents. More than half of the fatalities happened doing agricultural work, with more than a quarter happened at roadways (Figure 3). While any deaths of this manner are a tragedy, this represents a decrease from previous years, a welcome change when compared to the prior decade, which had three or more deaths due to tractor rollover every year.

Particularly revealing in this data collection is the prevalence of childhood injury due to exposure to machinery. As shown in Figure 4, more than half of all machinery-related fatalities that occurred involved minors. Additionally, half of those transpired with children under age ten. Narratives demonstrate that these fatalities generally resulted from adults operating machinery while unaware of nearby children, or children using machinery unsupervised. At the opposite end of the spectrum, adults and older adults accounted for the majority of motor vehicle fatalities. While it makes sense that the majority of these cases would involve adults, the fatalities cluster around ages 50 and 60-70 in particular. Meaningful conclusions may be drawn from further research.

Men still represent the vast majority of deaths across all years, with a single female fatality in 2019, two in 2021, and none in 2021. The majority of fatalities occurred to those aged 55 and older, with seven fatalities under age 19, 10 fatalities between the ages of 20-54, and 26 fatalities among those of age 55+ (Figure 5). When comparing with previous reporting for 2009-2018 [7], the fatalities of children and adults aged 55 or higher remained roughly the same proportion, while the ratio dropped for adults between 19 and 55 years of age. The region with most fatalities in 2019-2021 was the Finger Lakes, followed by the Capital District and North Country. Only four other regions had agricultural deaths: Mohawk Valley, Western New York, Southern Tier, and Central New York.

Discussion

It is important to recognize that while the last decade has seen a general downward trend in agricultural fatality rates, the numbers of 2021 may only be a momentary downtick in an otherwise erratic graph (Figure 1). It is essential that we keep our eyes on the goal: reducing agricultural fatality rates. Programs like the National ROPS Rebate Program (NRRP) offer a 70% refund to the cost of purchasing and installing a Rollover Protective Structure (ROPS) on a tractor to farmers in New York and Iowa, as well as limited funding in Pennsylvania, Vermont, New Hampshire, Wisconsin, Massachusetts, and Minnesota. In addition, it is beneficial to continue spreading the message of safety to everyone involved in the agricultural community.

Operators can increase the visibility of their equipment by ensuring that all lights and flashers on their farm vehicles are functional. Reflective tape increases visibility to motorists at dusk, while flags, flashers, and slow-moving vehicle emblems draw attention to the vehicles, aiding in the avoidance of a collision. If farmers must operate their farm vehicle on the road before dawn or after dusk, ensuring that their headlights are functioning will increase visibility to other motorists, and allow them to avoid hazards. Finally, operators should take additional care when traveling along narrow bridges, gravel, shoulders, or ruts, as their vehicles may not maneuver as well as a passenger vehicle in these conditions. With adherence to safety guidelines, installation of safety systems, and a generalized commitment to the wellbeing of the agricultural community, we may one day see a zero-sum fatality year.

Farms can be wonderful places for kids to grow up, but a little prevention can go a long way to keeping them safe. Safe play areas can be designated to help keep little ones away from hazardous equipment, animals, and other dangers. The Marshfield Clinic research foundation has released a safe-play booklet to guide parents in delineating play areas on their farms. They suggest a physical boundary be established through fencing, gates, or shrubs. Further, they recommend play areas be away from farm equipment, near first aid, hand washing, and toilet facilities, and supervised by a competent adult. The Marshfield Clinic safe-play guide includes a worksheet and step-by-step checklist to help plan out the play area on your farm, and can be found in the references section of this paper [8]. Many children are eager to help on the farm, but parents must remember that their age and maturity help dictate what tasks are appropriate for them. To assist with this, cultivatesafety.org has released various guidelines regarding the supervised cleaning of calf pens, grain bins and service alleys, feeding livestock, and many other farm work activities suitable for youths [9]. To find a full page of guides, go to cultivatesafety.org and navigate to the Work tab.

The New York Center for Agricultural Medicine and Health (NYCAMH) offers a variety of safety programs with the well-being of farmers and agricultural workers in mind. Safety training is available for tractors, skid steers, animal handling, chainsaws, chemicals, and pesticides, among many other topics. In addition, personal protective equipment (PPE) and power take off (PTO) shields are available for purchase, while the John May Farm Safety Fund and Rollover Protection System (ROPS) Rebate Program provide an opportunity for farmers to cost share the expense of improving safety on their farms and farm equipment. To take advantage of these services, reach out to NYCAMH via phone at 800-343-7527, or email: info@nycamh.org.

Limitations

The findings of this report are subject to several limitations. As the primary source of agricultural fatality report accumulation is through the media, there is always the possibility that some events are missed. To mitigate this issue, the AgInjuryNews website is reviewed, and the New York State Census of Fatal Occupation Injuries (CFOI) Program is consulted. However, as CFOI designates agricultural fatalities based upon an individual directly carrying out agricultural duties, it is possible that civilian fatalities occurring as a result of agricultural activities, e.g. roadway crashes, are not included. Additionally, the data release timing from other programs may mean some fatality records may not be represented in these data.

Acknowledgements

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Figures

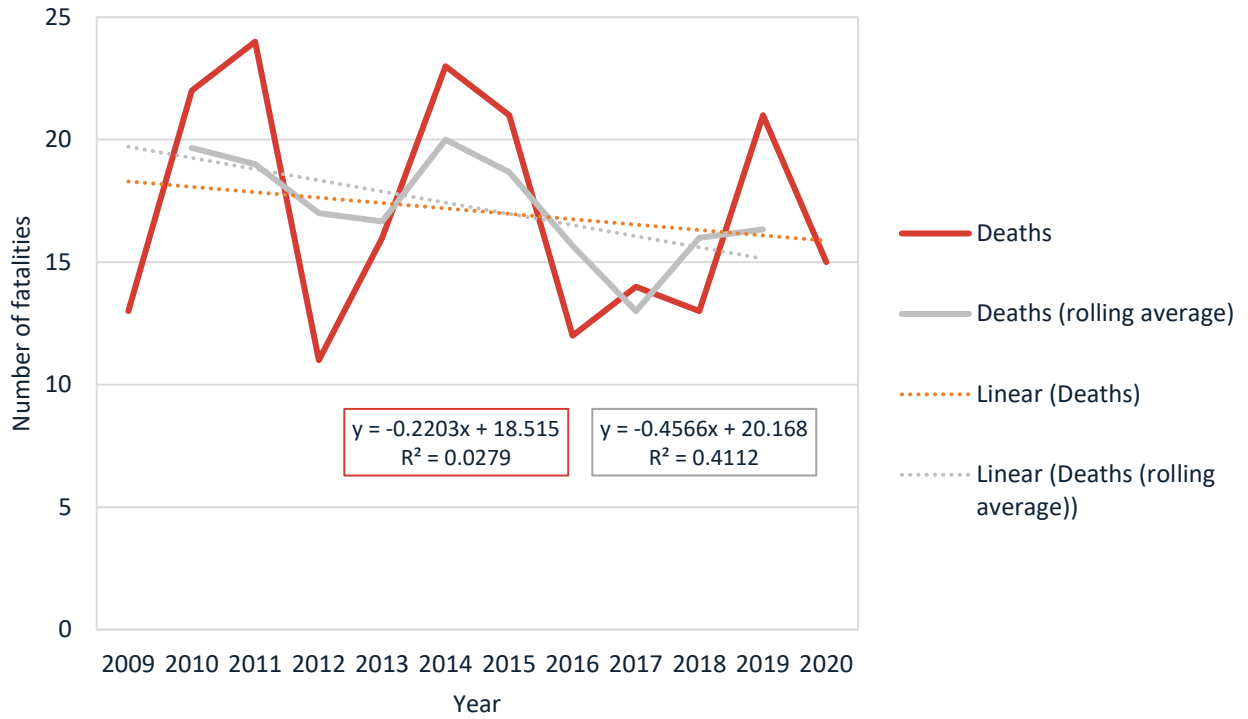


Figure 1. Number of Agricultural Fatalities, New York, 2009-2021

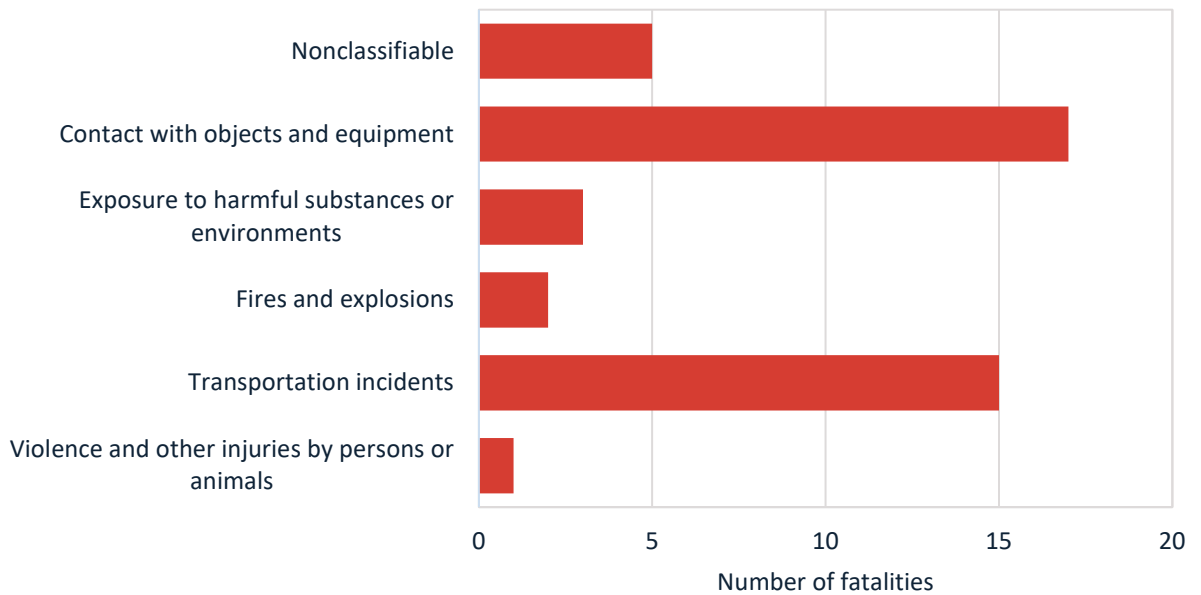


Figure 2: Fatalities coded by OIICS Event/Exposure, New York, 2019-2021

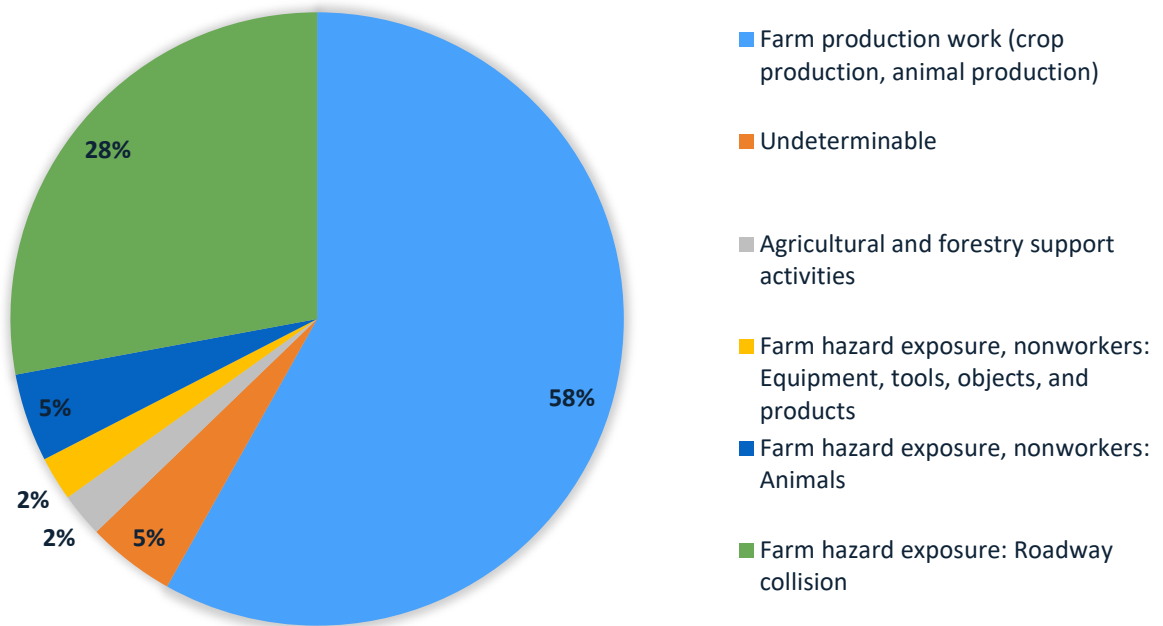


Figure 3: Fatalities by Farm and Agricultural Injury Classification, New York, 2019-2021

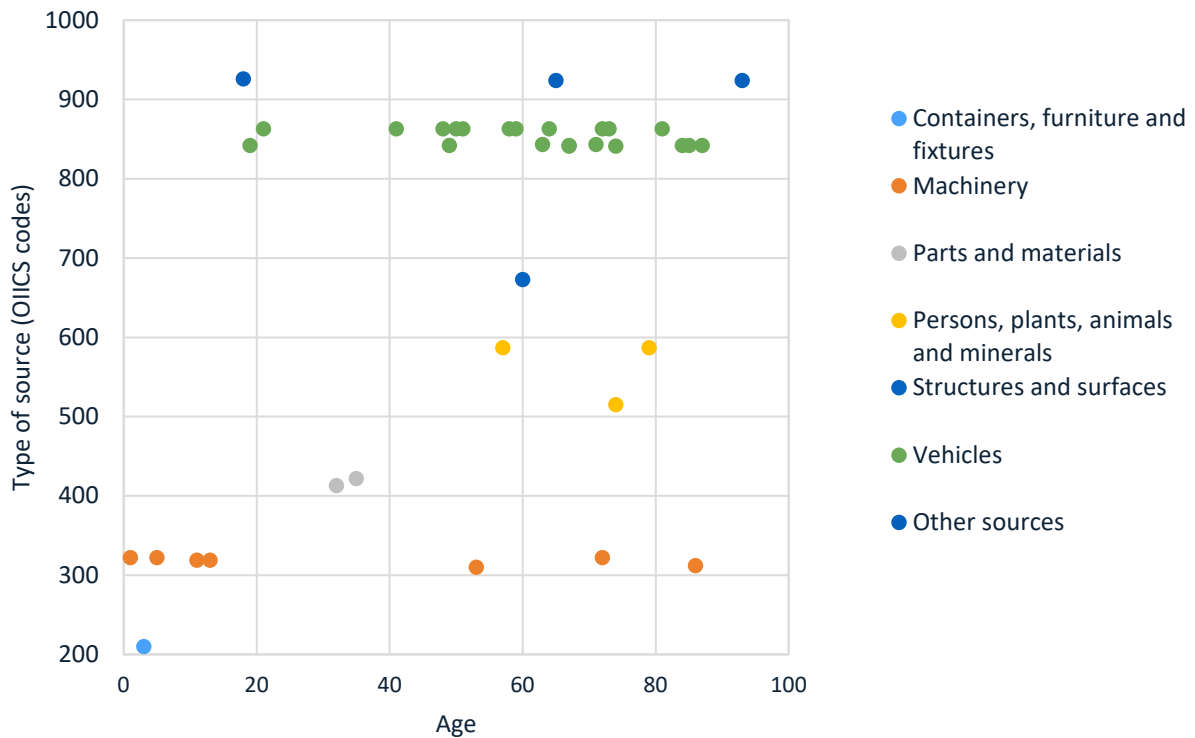


Figure 4: Primary source versus age, New York, 2019-2021

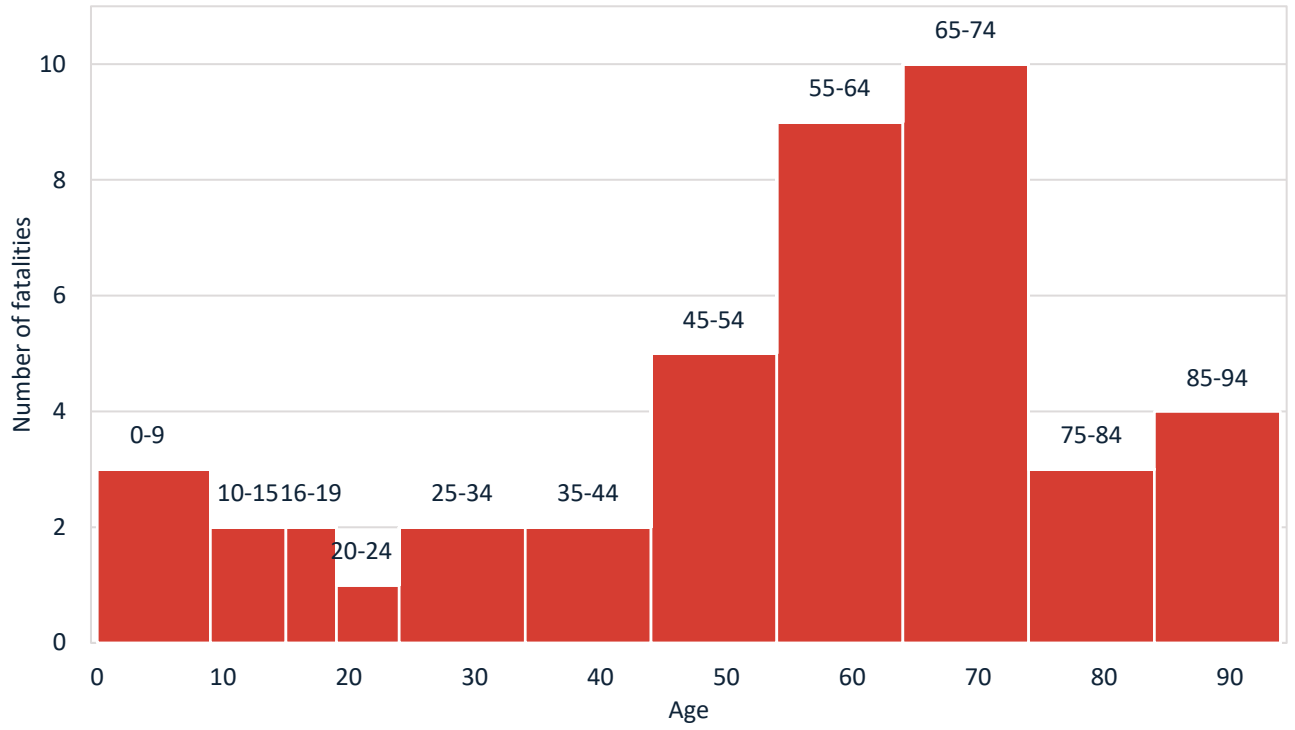


Figure 5: Distribution of ages, New York, 2019-2021