

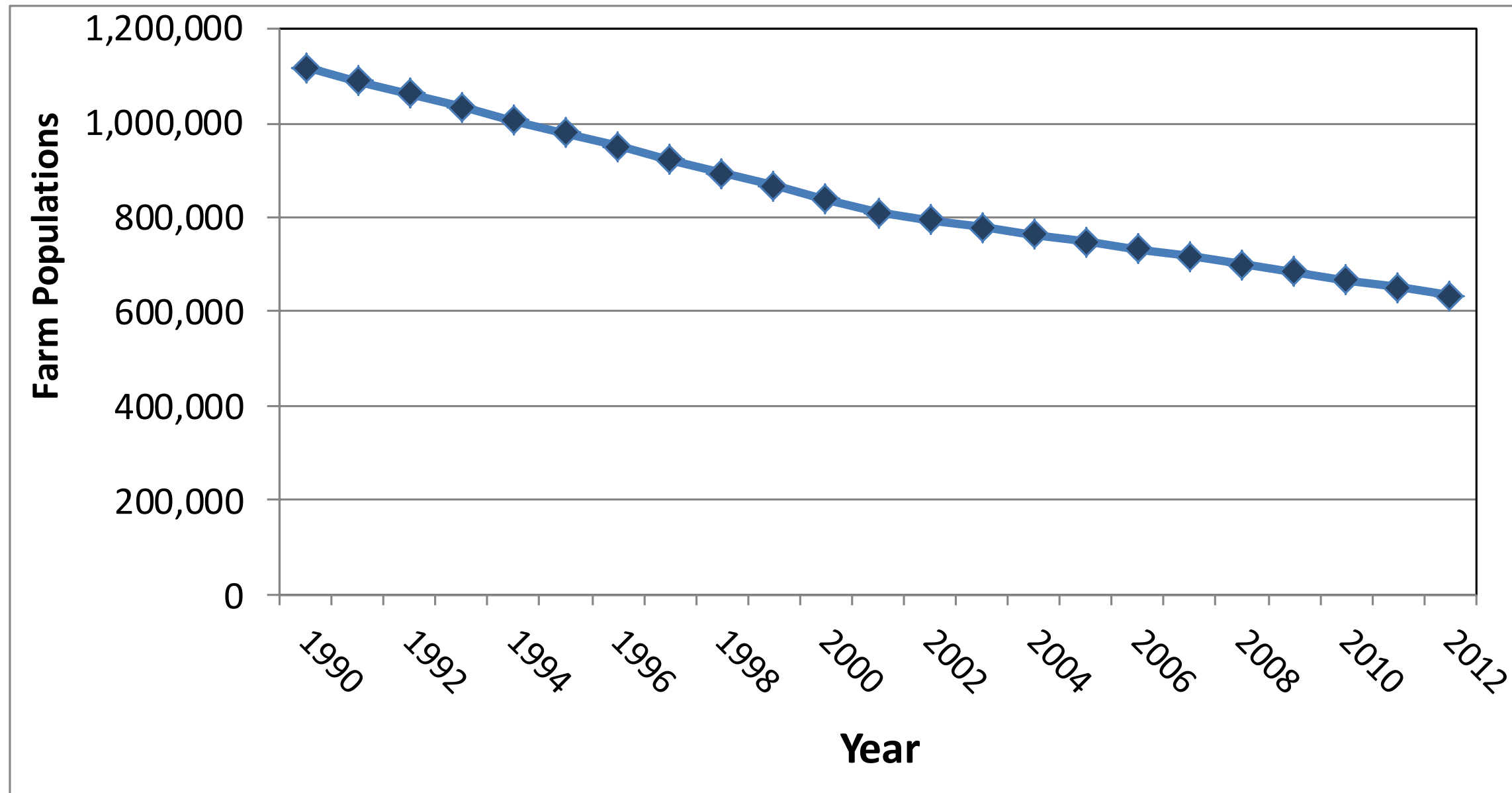
Canadian agricultural fatalities 1990-2012

who, where, when and so what?



- CASA manages an agricultural fatal injury surveillance program called CAIR
- Records are pulled from the provincial coroners and compiled into a national database
- This is a presentations based on the findings of our latest report, PEI from 2007-8.
- In 2011 the definition to census data for farm populations changed. Therefore, comparing rates from previous reports is not possible.
- SO how does the Ag fatalities rate compare to other leading causes of fatal injuries.....Motor Vehicle collisions and Suicides?

Canadian Agricultural Population 1990-2012

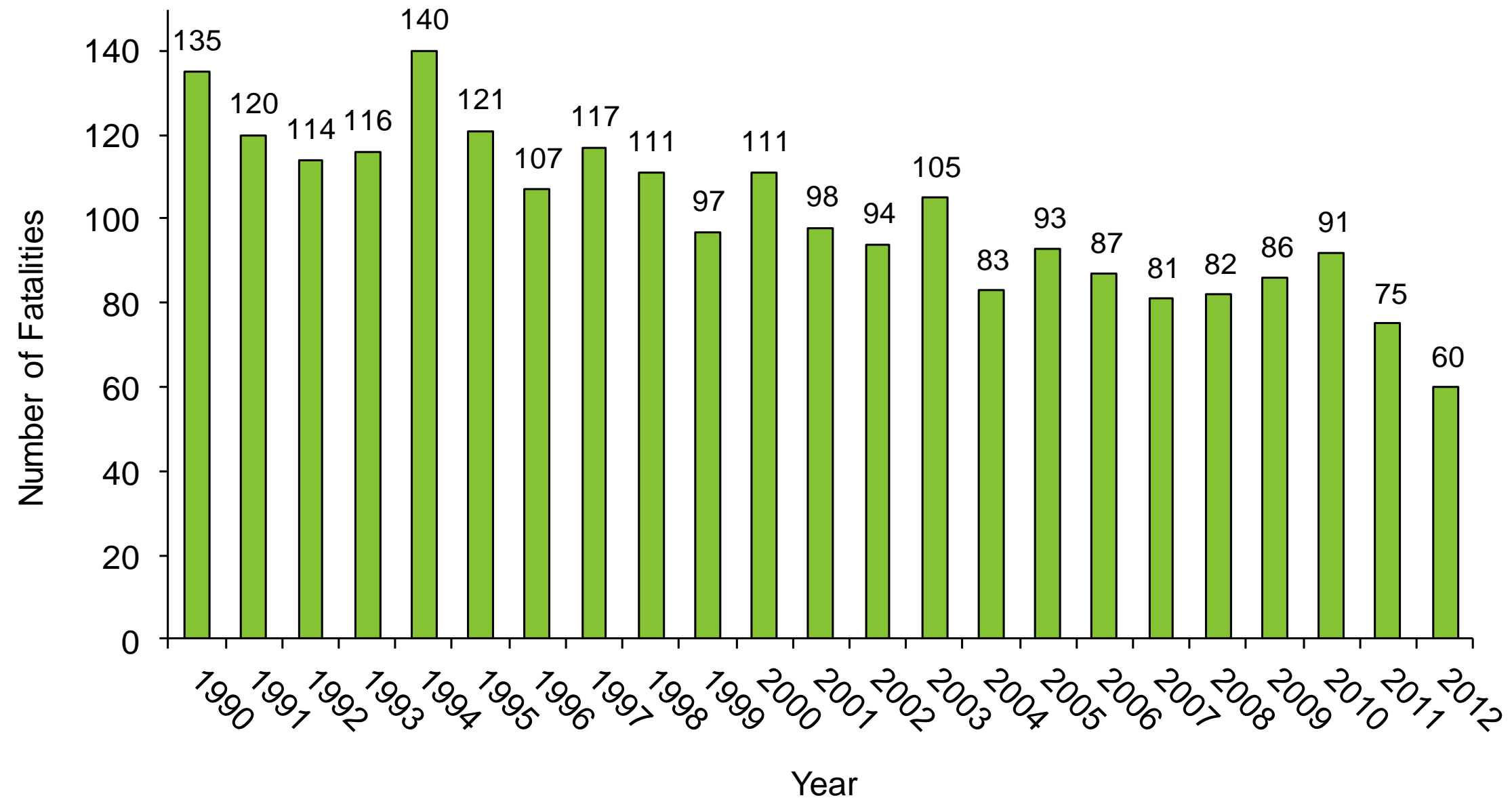


Farm Populations

Over the period from 1990-2012 there has been a decrease in the Canadian farm population of 42%. This equates to 469,582 fewer people on farms. In 1990 there were 1,18,053 people counted in the agriculture census and based on linear extrapolation using the 1996, 2001, 2006 and 2011 Canada Census of Agriculture the agriculture population in 2008 the count dropped to 633,858.

Farm Population: *The population covered by the Agriculture–National Household Survey Linkage database and the estimates derived from it also changed in two ways in 2011. First, the definition of the farming population changed. In the years prior to 2011, only operators and their families who resided on the farm at any time in the previous 12 months were included in the farming population. **In 2011, the on-farm restriction was removed. Operators and their families not residing on a farm are also included. Second, residents of collective dwellings were not eligible to receive the National Household Survey and, thus, are not represented in the Agriculture–National Household Survey Linkage database. The new farm population definitions were applied to the 1996, 2001, and 2006 census data. Therefore, comparing rates presented in this report with previous reports is not advised.***

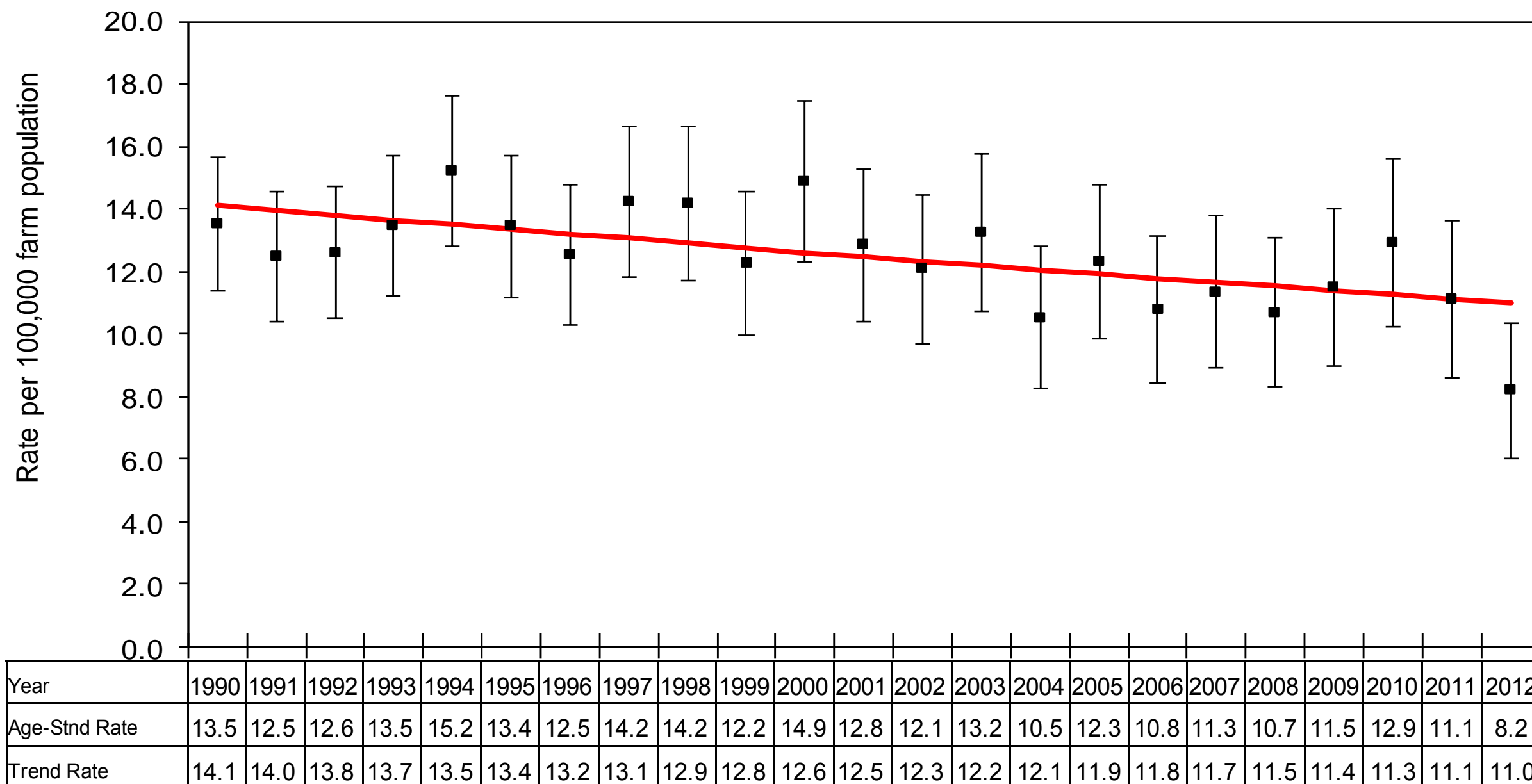
Canadian Agricultural Fatalities 1990-2012



From 1990 to 2012, there were 2,324 agricultural fatalities in Canada. An average of 101 deaths each year. During the first 12 years of the surveillance period (1990-2001) there was an average of 116 fatalities each year. During the last 11 years (2002-2012) the average number of fatalities dropped to 85 each year.

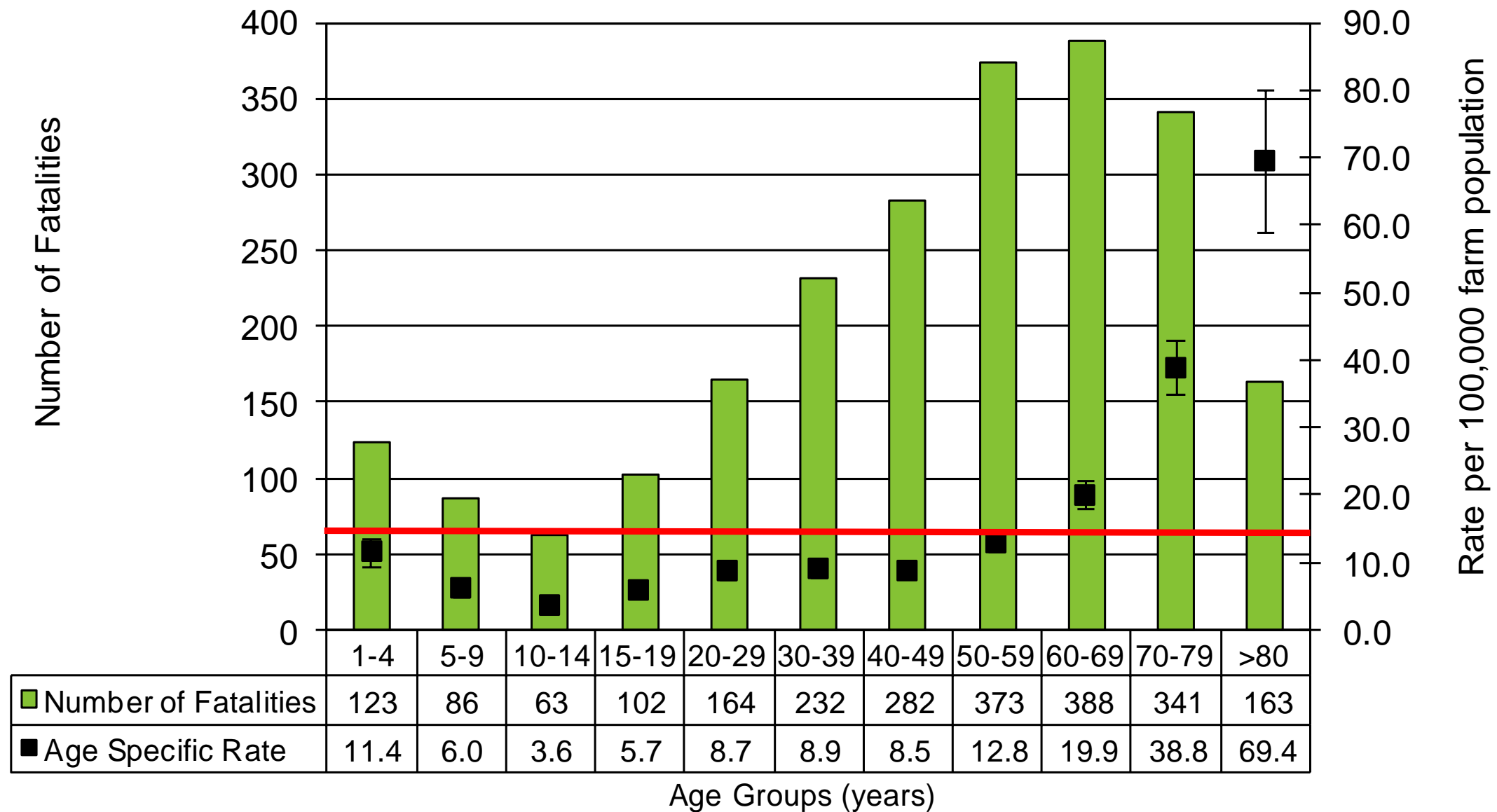
Note: The number deaths in previous reports differ from those in the current report. This is due to the removal of “extrapolated Quebec” deaths with actual death counts. In addition, 2007-2008 are incomplete for the province of PEI.

Canadian agricultural fatality rates trends 1990-2012



Over the 23 year period the overall agriculture fatality rate decreased an average of 1.1% annually.

Agricultural fatalities: age groups, 1992-2012



The overall agriculture fatality rate was 11.7 deaths per 100,000 farm population.

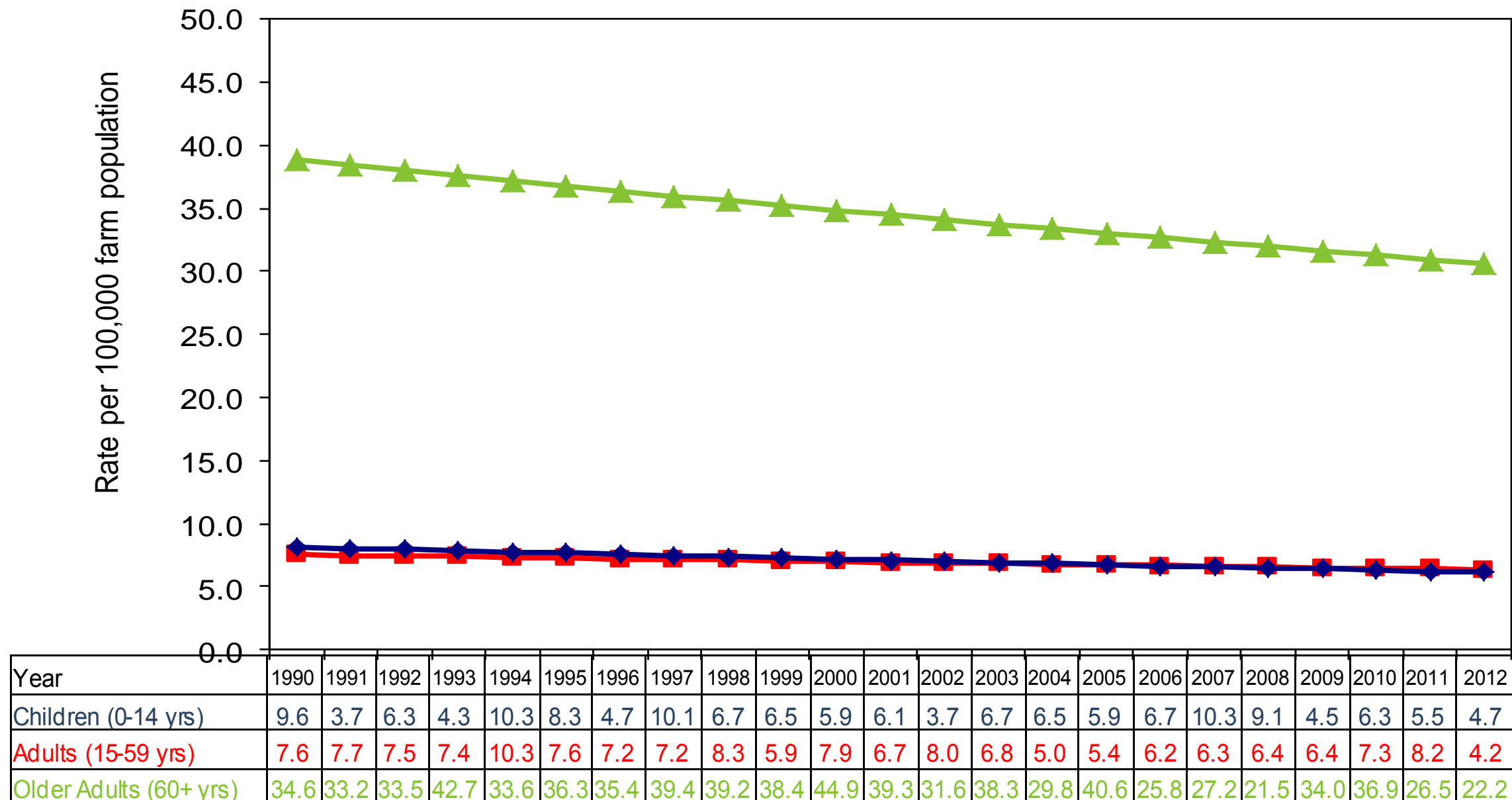
The age groups with the highest number of deaths, those 60 to 69 years of age (388 deaths) and those 50 to 59 years of age (373 deaths) did not have the highest rate, 19.9 deaths per 100,000 farm population and 12.8 deaths per 100,000 population respectively. The age group with the highest fatality rate was experienced by those 80 years of age and older with a rate of 69.4 deaths per 100,000 farm population with 163 deaths.

There were 7 deaths in which age was not documented.

The overall rate for the 23 year period was 12.1 deaths per 100,000 farm population.

crude rate one giving the total number of events occurring in an entire population over a period of time, without reference to any of the individuals or subgroups within the population

Agricultural fatalities: age groups, 1990-2012



When comparing the fatality rates by population group, each age group experienced a decrease in the death rate. Older adults (60+ years) consistently had higher death rates than children and adults. The death rates for children and adults are very similar.

Adults (15-59 years) experienced a statistically significant decrease in the death rate with an average of 1.1% annually. Older adults (60+ years) experienced an average annual decrease in the death rate of 1.1%, and children (0-14 years) had an average decreased of 0.8% annually.

APC-annual percentage change:

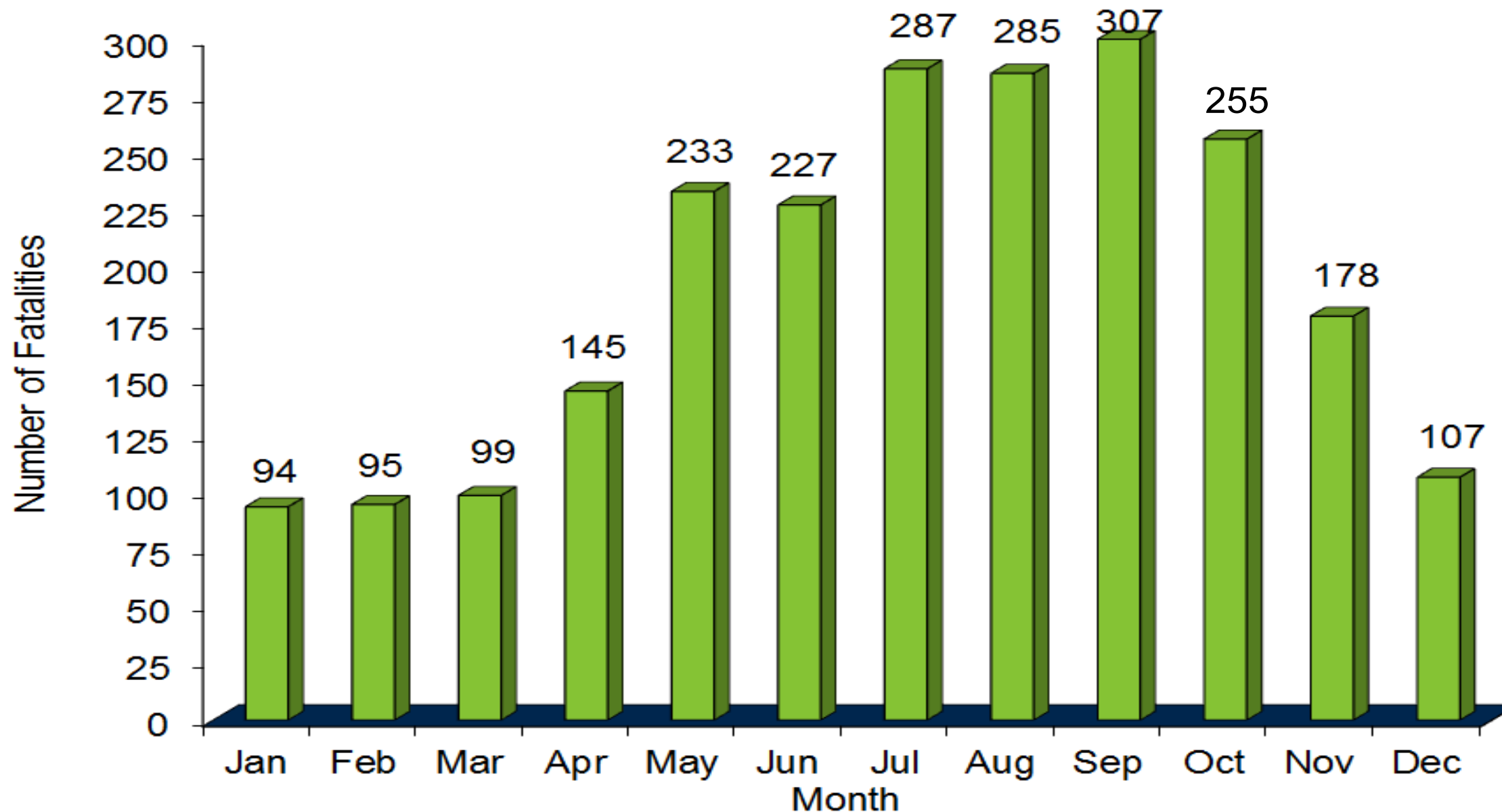
Children = -0.8

Adults = -1.1*

Older Adults = -1.1

* = statistically significant

Canadian agricultural fatalities: months, 1990-2012



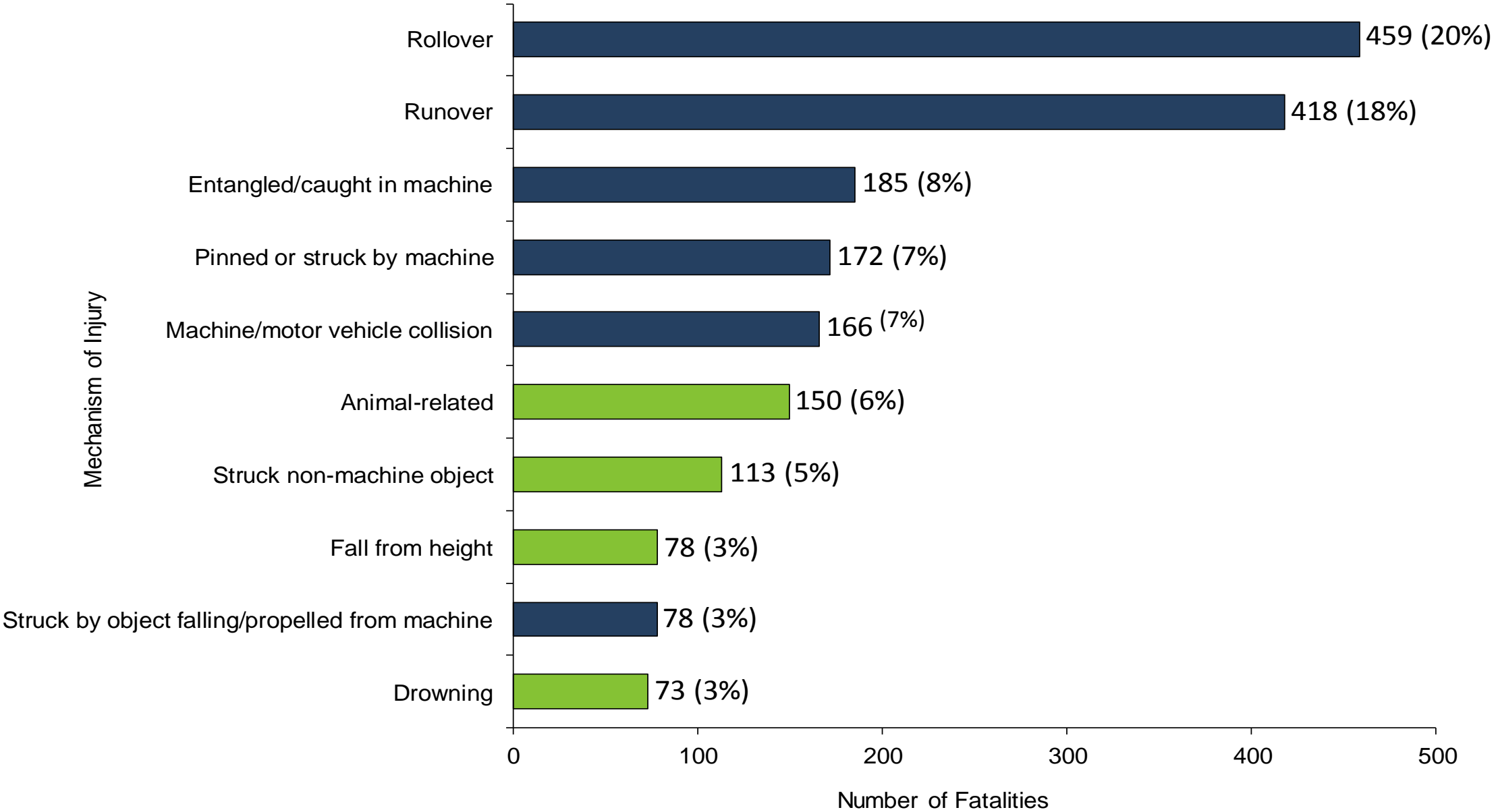
69% of all agricultural fatalities in Canada occurred from May to October with 1,595 deaths.

The highest proportion of fatalities took place in September (13%). Another 12% of the deaths occurred in the months of July and August.

Relatively few fatal agricultural injuries occurred in the winter months of December to March.

There were 12 deaths in which the month was not documented.

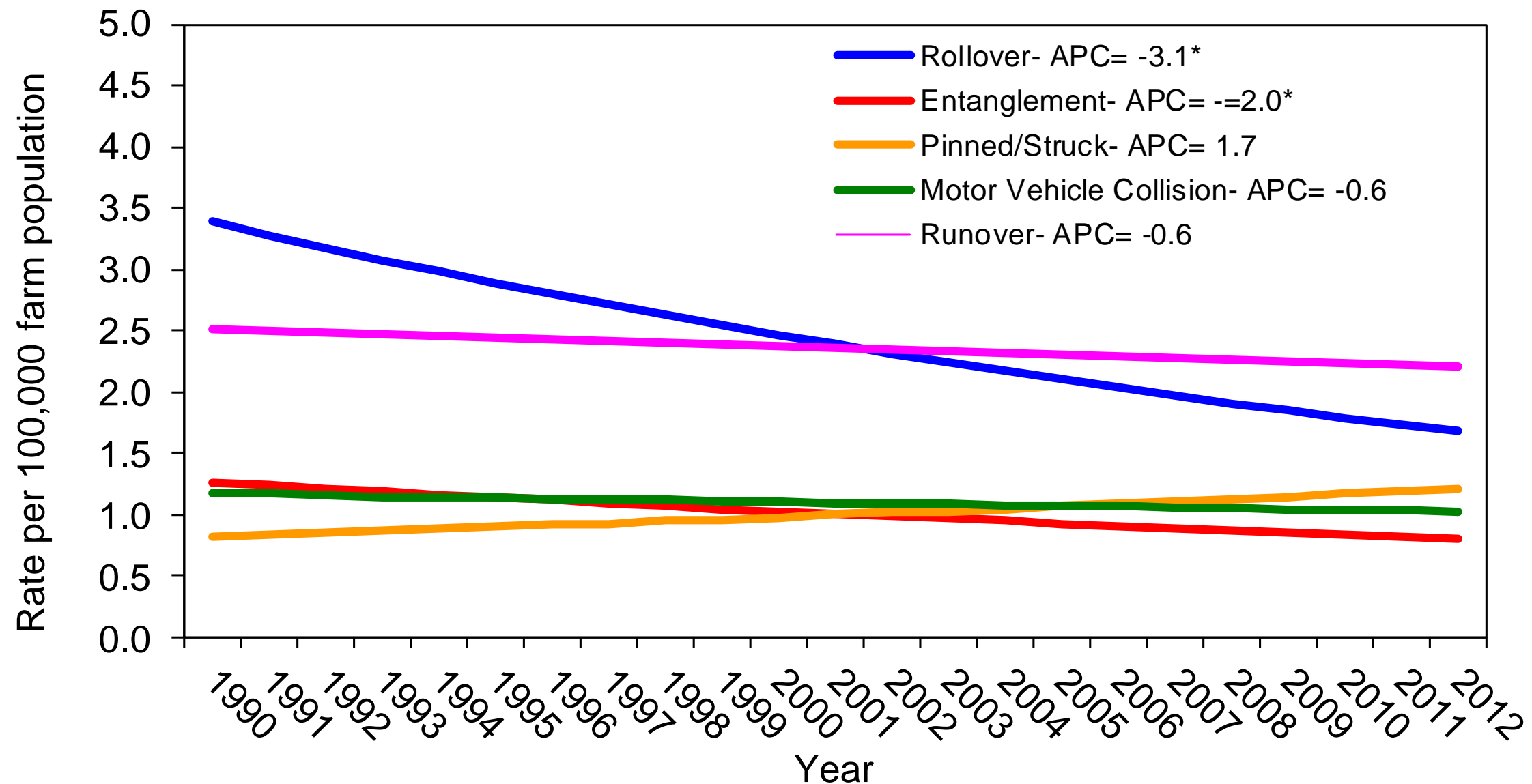
Canadian agricultural fatalities: cause, 1990-2012



Almost half of all agricultural fatalities in Canada (46%) were due to three machine-related causes: machine rollovers, machine runovers and machine entanglements (total of 1,062 fatalities). Machine rollovers and machine runovers accounted for 20% and 18% of deaths respectively. Machine entanglements (8%), being pinned or struck by a machine and traffic collisions each with 7%, animal-related events with another 6% and being struck by a non-machine object 5%.

There were an additional 20 machine-related and non-machine-related mechanisms of injury categories with 433 deaths (19%) were not included in the above graph.

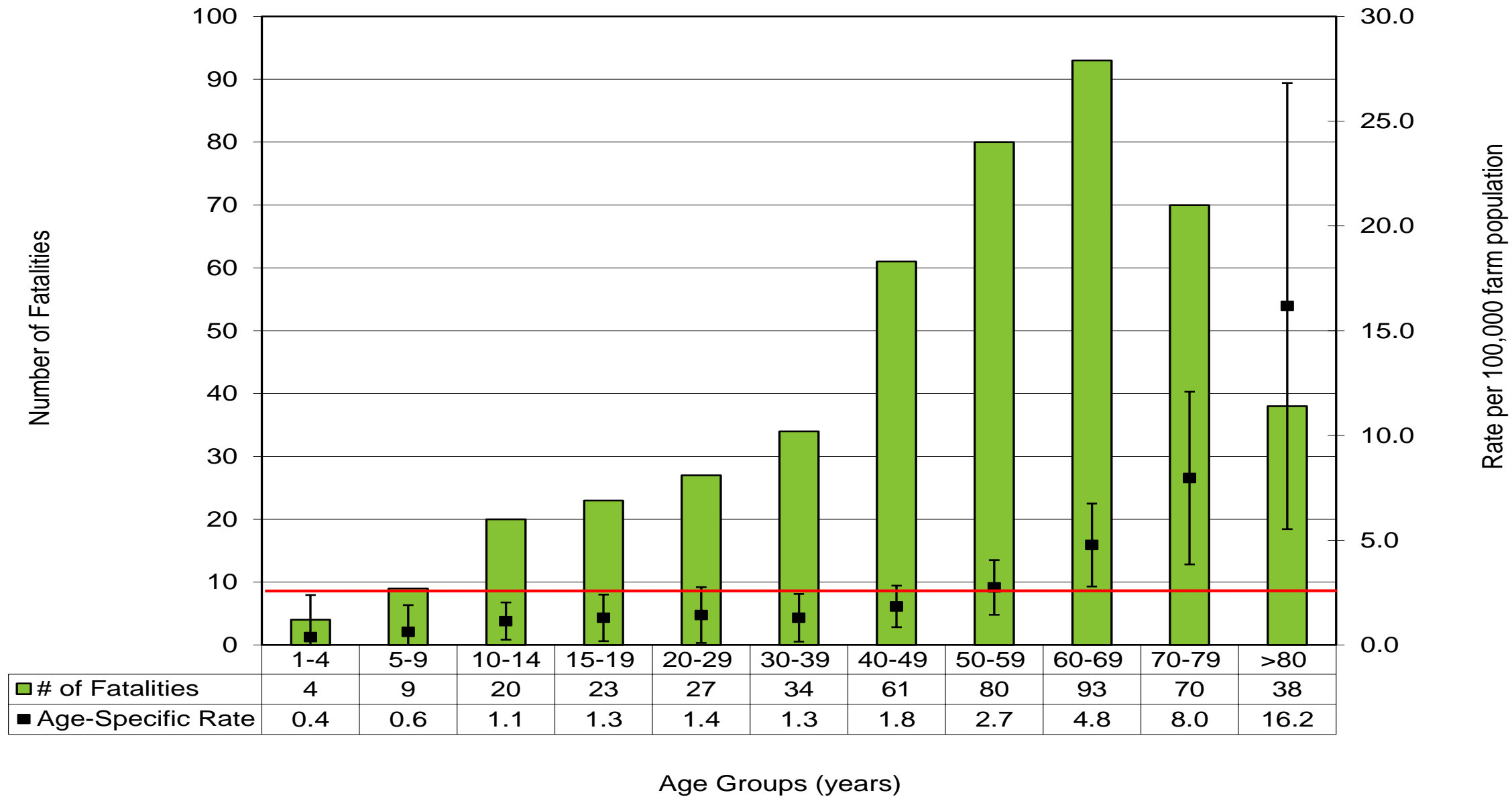
Top five mechanisms of injury: calendar year, 1990-2012



When analyzing the top 5 machine-related mechanisms of injuries over time, injury rates due to rollovers experienced a decrease on average of 3.2% annually, injury rates due to entanglements decreased by an average of 2.0% each year, motor vehicle collision and runover injury rates decreased by an average of 0.6% each year. The decreases are thought to be due to improvements in machinery safety design. However, injury rates due to being pinned/struck increased by an average of 1.7% each year.

- While the other reductions are most likely due to engineering improvements in equipment, the pinned or struck would be attributed to operator error. This would identify equipment training as a gap, because either the operator does not know how to handle the equipment, or is not aware of the proper procedures to minimize the hazard. Increased numbers may also be in part to the size of equipment and more blind spots.

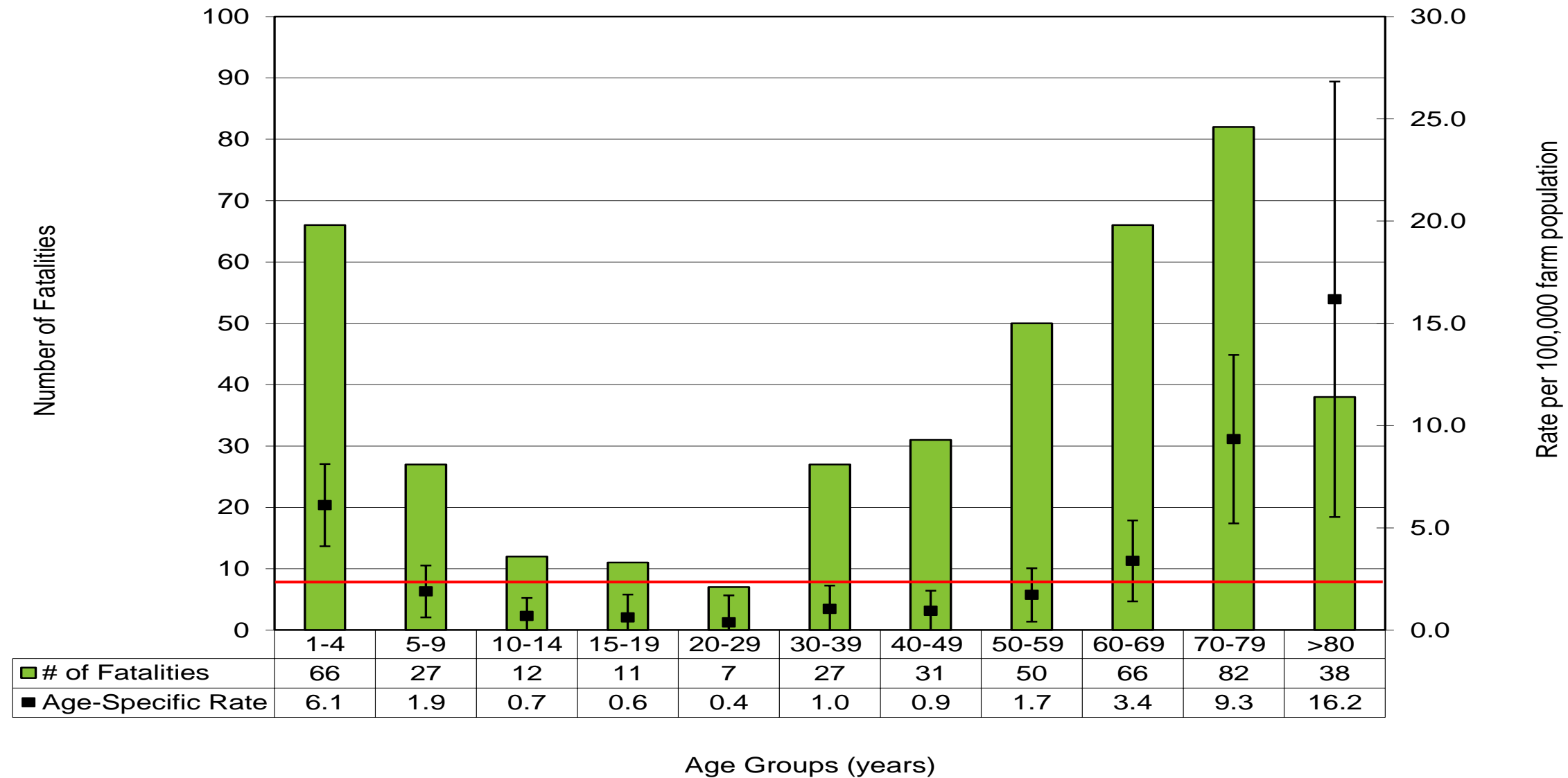
Rollovers: age groups, 1990-2012



Rollovers

Of the 459 rollover deaths, those between 60 and 69 years of age had the highest number of deaths (93 deaths). However, farmers 80 years of age and older had the highest rate with a rate of 16.2 deaths per 100,000. This rate is 7 times higher than the overall rate of 2.3 deaths per 100,000 farm population.

Runovers: age groups, 1990-2012



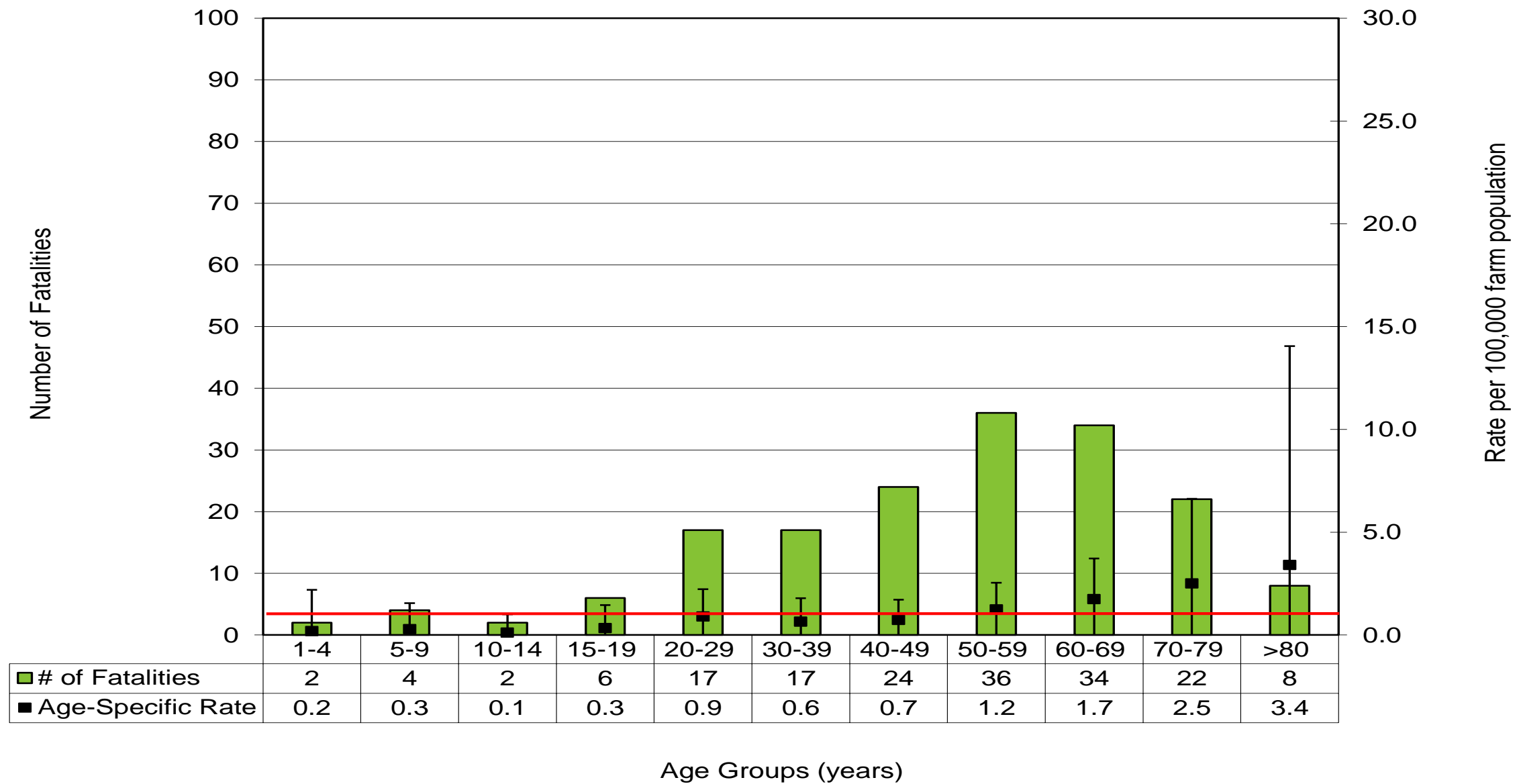
Runover

Of the 418 runover deaths, those between 70 and 79 years of age had the highest number of deaths. However, farmers 80 years of age and older had the highest rates with a rate of 16.2 deaths per 100,000 farm population. Children between 1 and 4 and those between 60 and 69 years of age had the second highest number of runover deaths. Older farmer had a rate 7 times higher than the overall rate of 2.1 deaths per 100,000 population.

Of the 38 deaths of farmers 80 years of age and older, the majority 63% (24 deaths) involved and unmanned machine. This type of fatal events, the victim is runover by a vehicle he/she had left running or unblocked on a slope.

Of the 66 children (between 1 and 4 years of age) deaths, the majority 61% the child was a bystander. Another 39% (26 deaths) the child was a passenger.

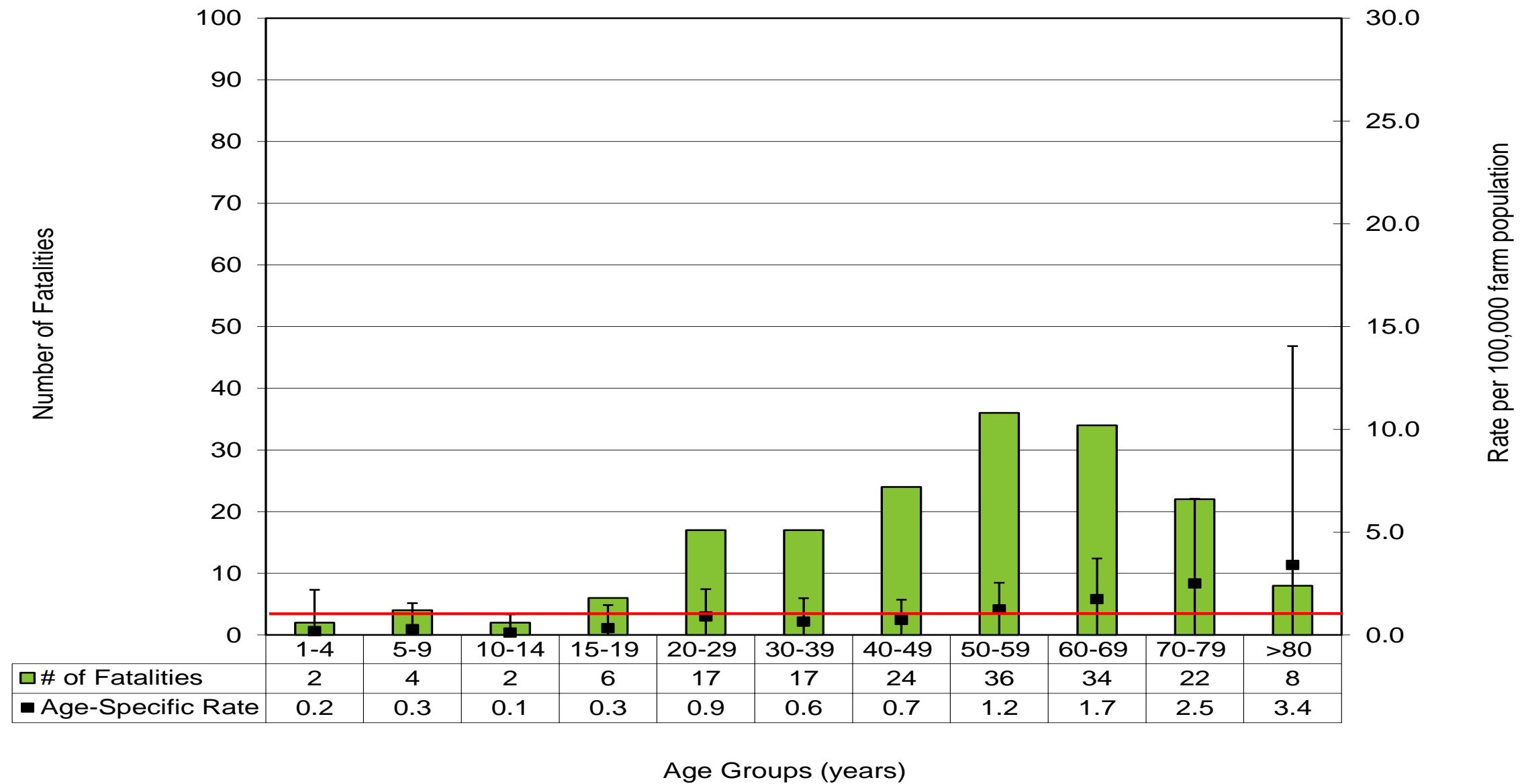
Entanglements: age groups, 1990-2012



Entanglements

Of the 185 entanglement deaths, those between 50 and 59 years of age had the highest number of deaths. However, again, farmers 80 years of age and older had the highest rate with a rate of 3.4 deaths per 100,000 farm population. This rate is 3 times that of the overall rate of 0.9 deaths per 100,000 population.

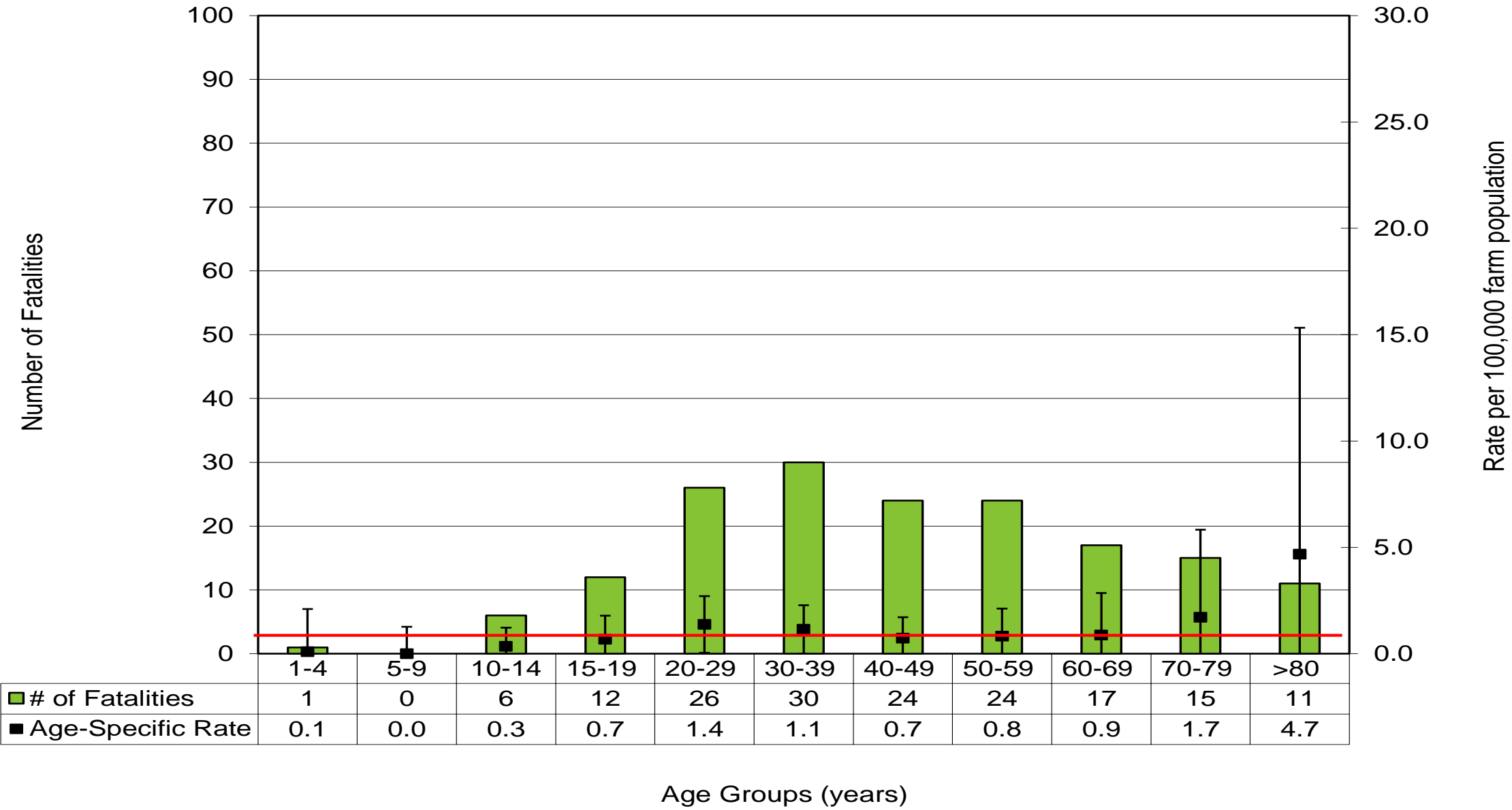
Pinned/struck by machine: age groups, 1990-2012



Pinned/struck by machine

Of the 172 deaths from being pinned or struck by a machine, those between 50 and 59 years of age had the highest number of deaths. However, farmers 80 years of age and older had the highest rates with a rate of 3.4 deaths per 100,000 population. This rate is 3 times higher than the overall rate of 0.9 deaths per 100,000 population.

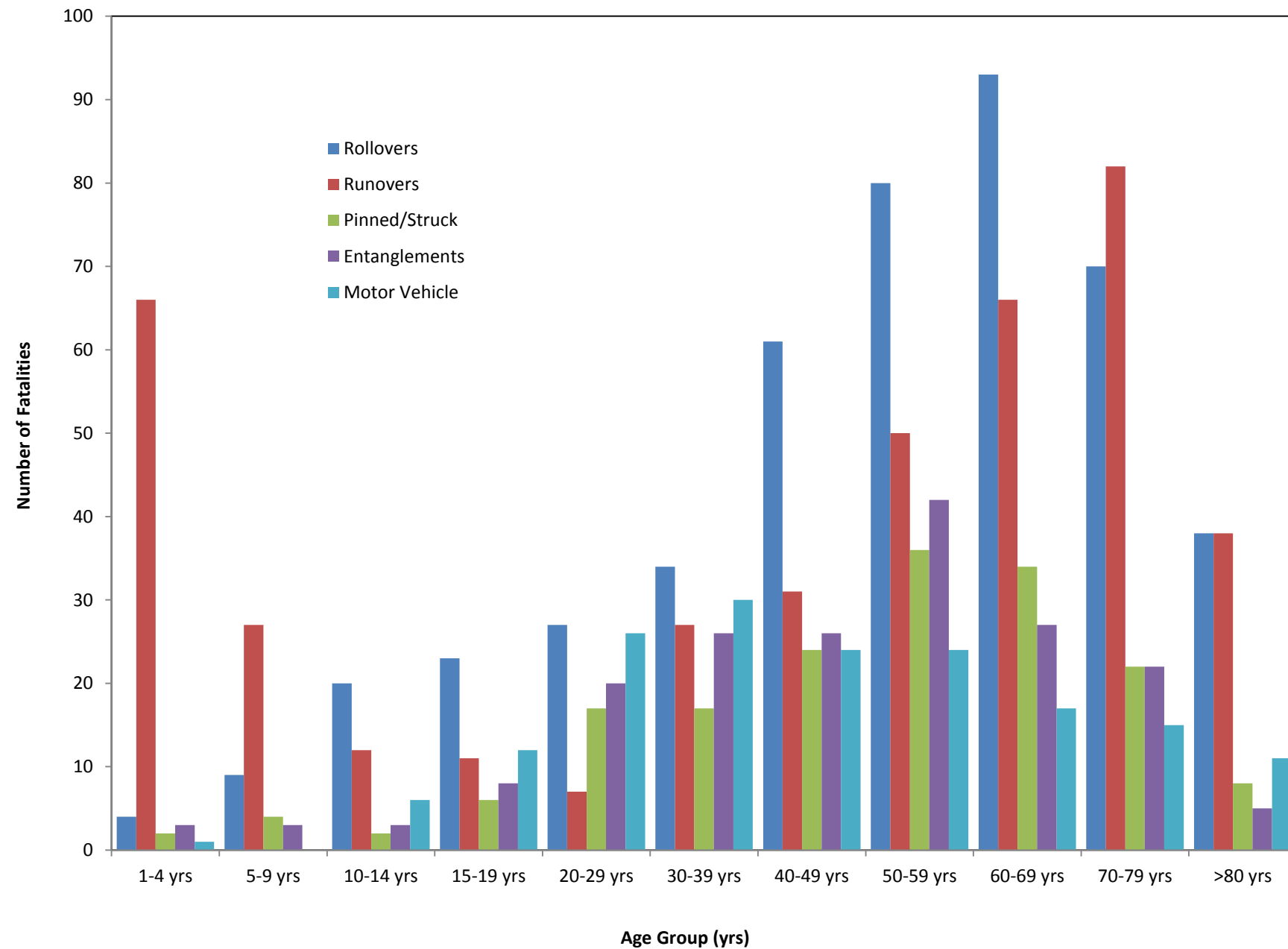
Motor Vehicle: age groups, 1990-2012



Motor Vehicle

Of the 166 deaths involving motor vehicles, those between 30 and 39 years of age had the highest number of deaths. However, farmers 80 years of age and older had the highest rates with a rate of 4.7 deaths per 100,000 population. This rate almost 6 times higher than the overall rate of 0.8 deaths per 100,000 population.

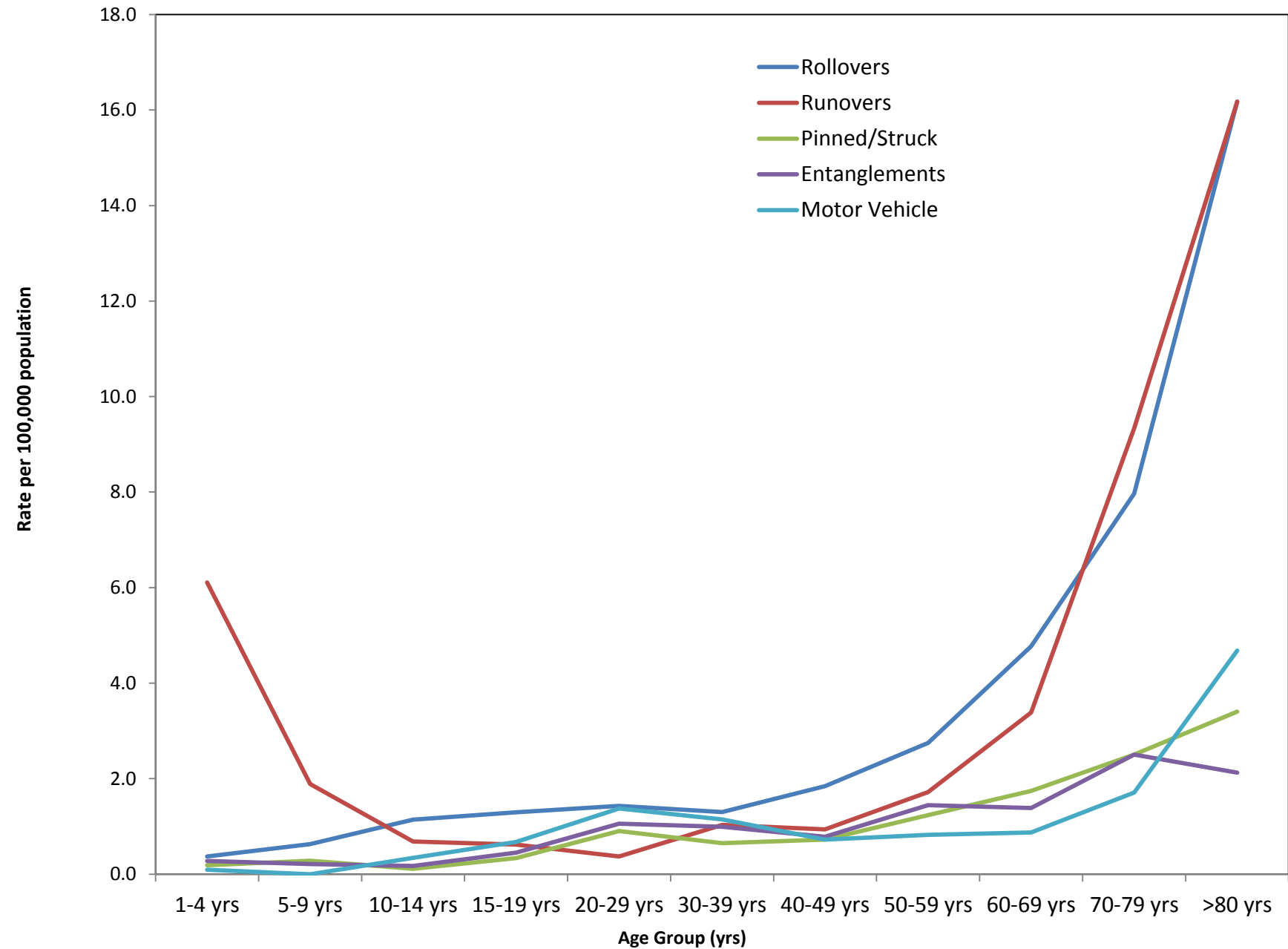
Top 5 Mechanism Fatality Rate Comparison, 1990-2012



Top 5 mechanism death number comparison

Don: This is a “repeat” graph. I included this graph because I did a rate graph. This graph is a little too busy but the rate graph is good.

Top 5 Mechanism Fatality Rate Comparison, 1990-2012

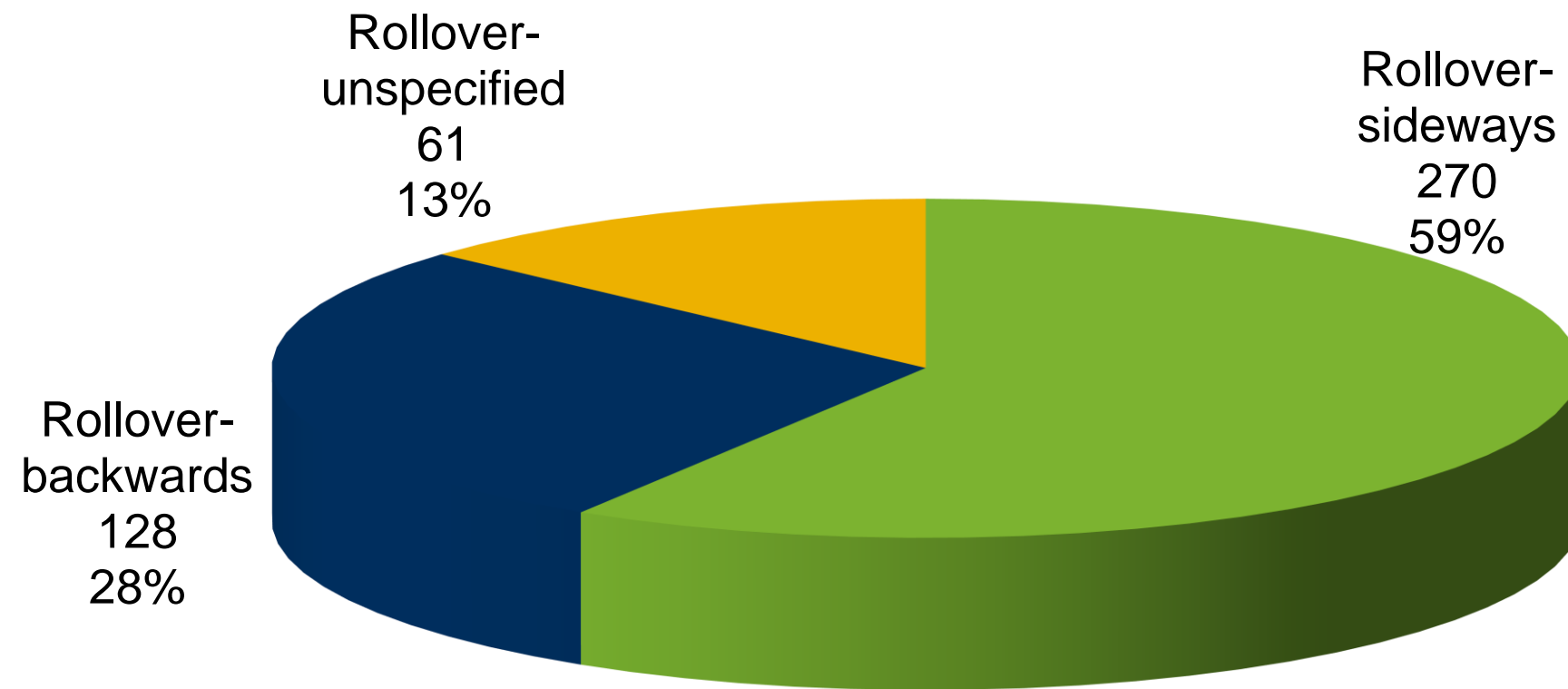


Top 5 mechanism death rate comparison

Don: This is a “repeat” graph. I included this graph as it allows for better comparison of rates.

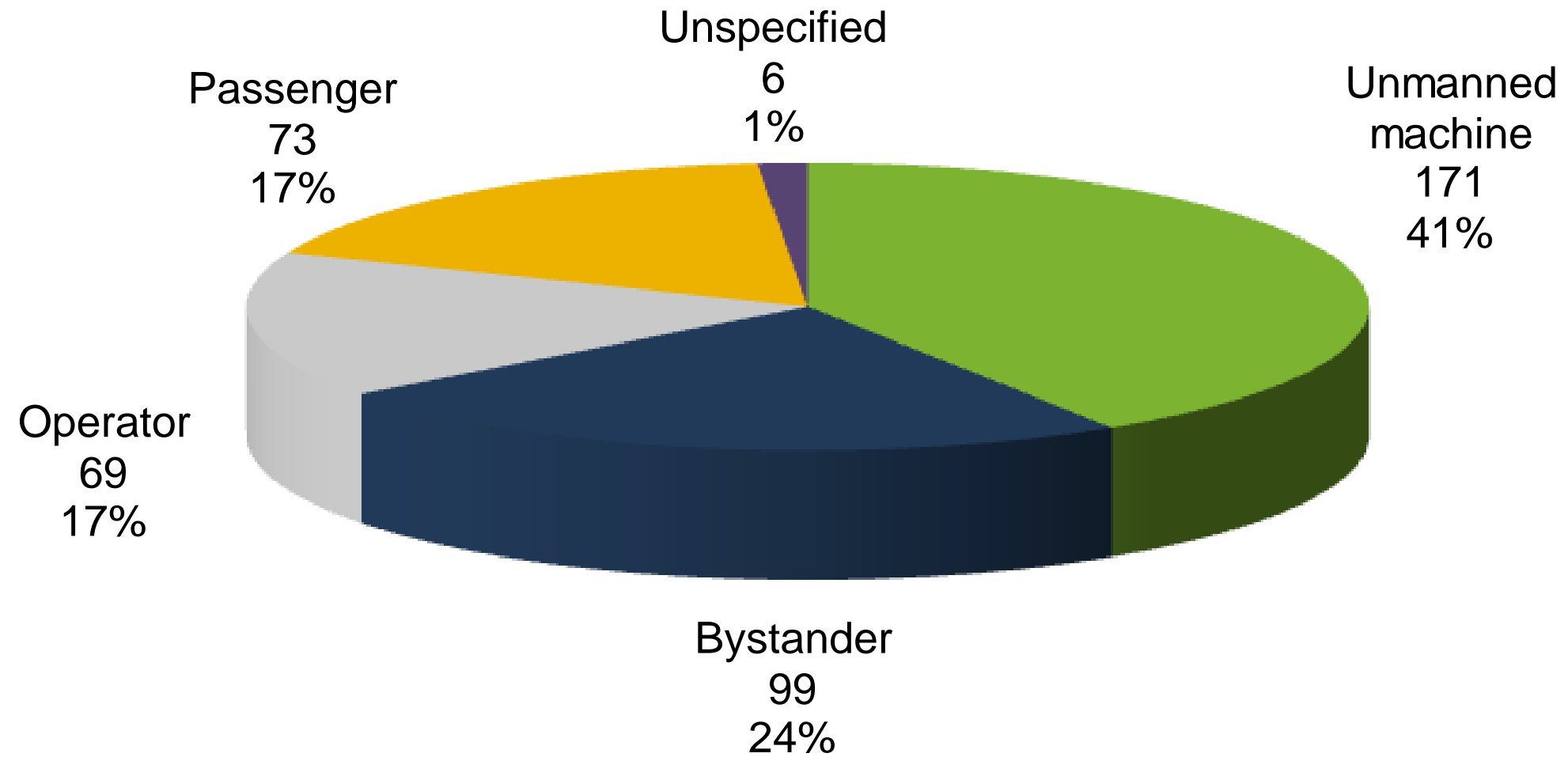
As you can see the death rates tend to increase with age. However, the death rate for runovers is high in children.

Canadian agricultural machine rollover fatalities: 1990-2012



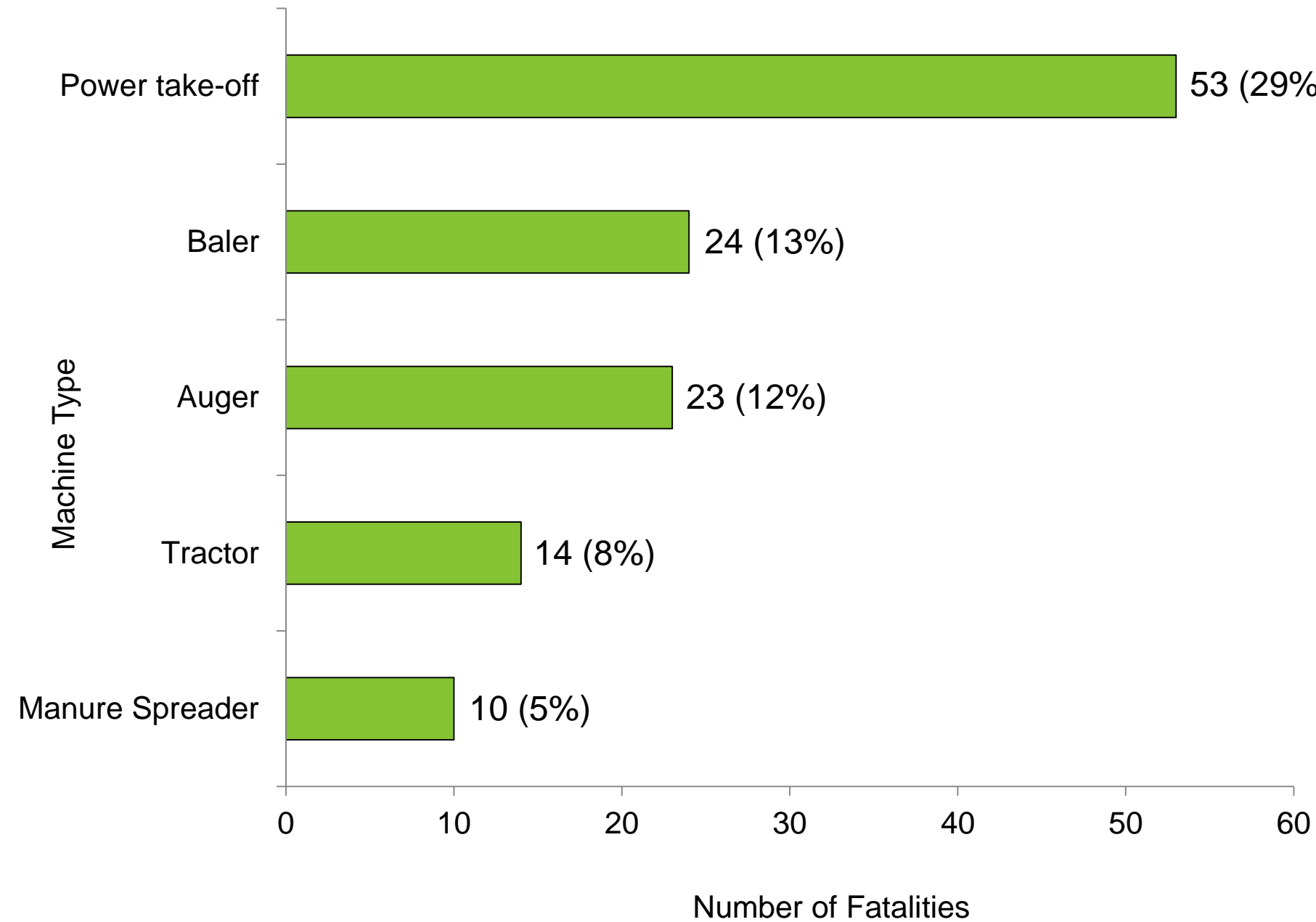
Of the 459 rollover deaths, the majority (59A%) of them resulted from piece of machinery rolling in a sideways direction.

Canadian agricultural machine runover fatalities: categories, 1990-2012



There were 418 agricultural runover fatalities from 1990 to 2012. Alighted operator runovers (unmanned machine) were the most frequent type of fatal runover (41%). In this kind of injury event, the victim is runover by a vehicle he/she had left running or unblocked on a slope. Bystander runovers caused the second largest percentage of runover fatalities (24%), followed by operator who as fallen from a machine and subsequently runovers (17%), passenger/extra rider runovers (18%). There were 6 deaths in which the decedent was not identified as an operator, passenger or bystander.

Entanglements: top 5 machine types, 1990-2012

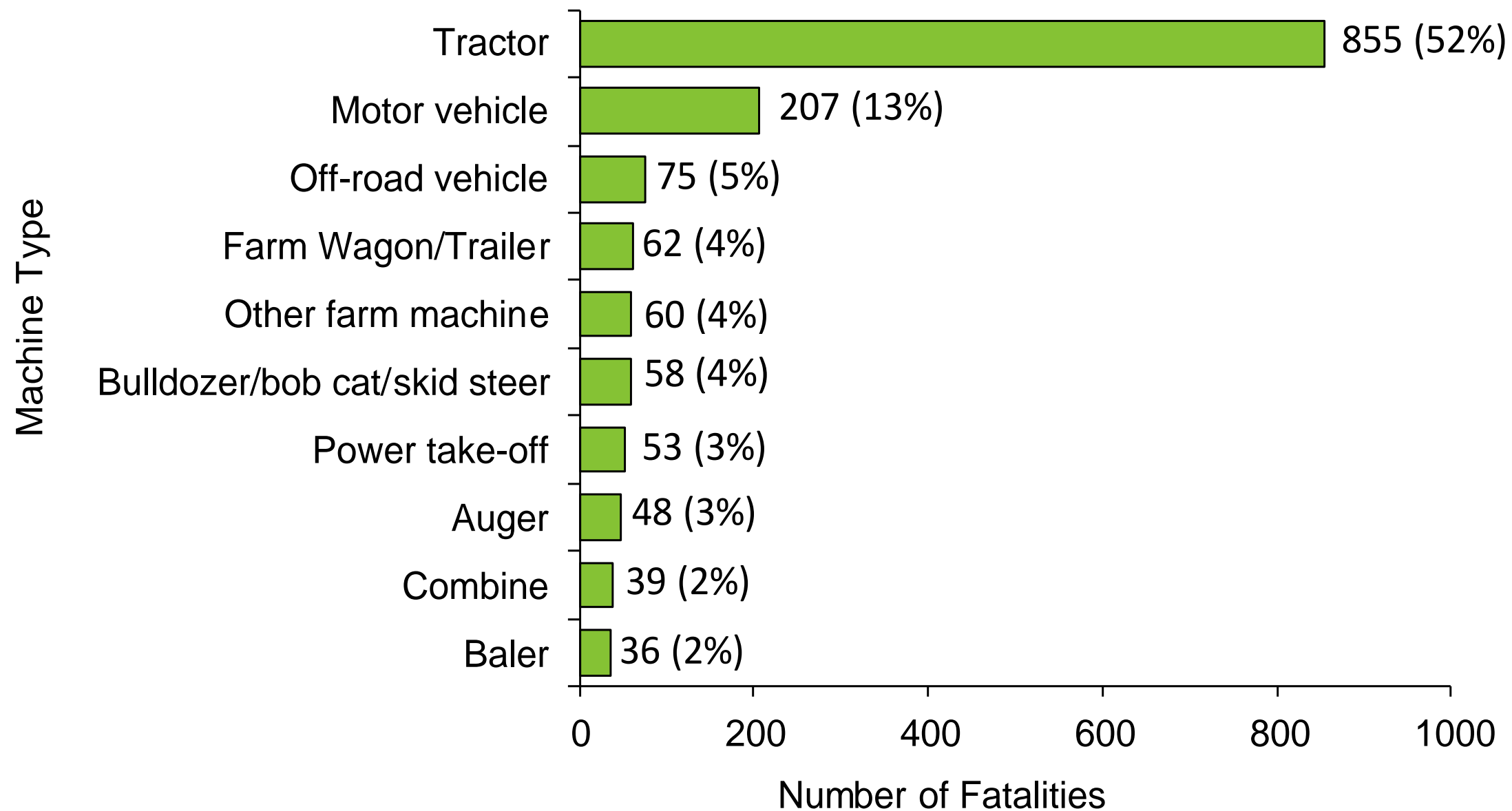


Of the 185 entanglement deaths the majority of them 56% (103 deaths) involved a piece of clothing getting caught. The power take-off was the most frequent piece of equipment (29%) involved in entanglements. Of the 53 entanglement deaths 83% (44 deaths) there was documentation to indicate that a piece of clothing got caught.

Of the 24 deaths due to entanglements in a baler, only 13% had a piece of clothing caught.

Of the 23 auger entanglements, 61% (14 deaths) a piece of clothing got caught.

Canadian agricultural machine-related fatalities: top 10 machine types, 1990-2012

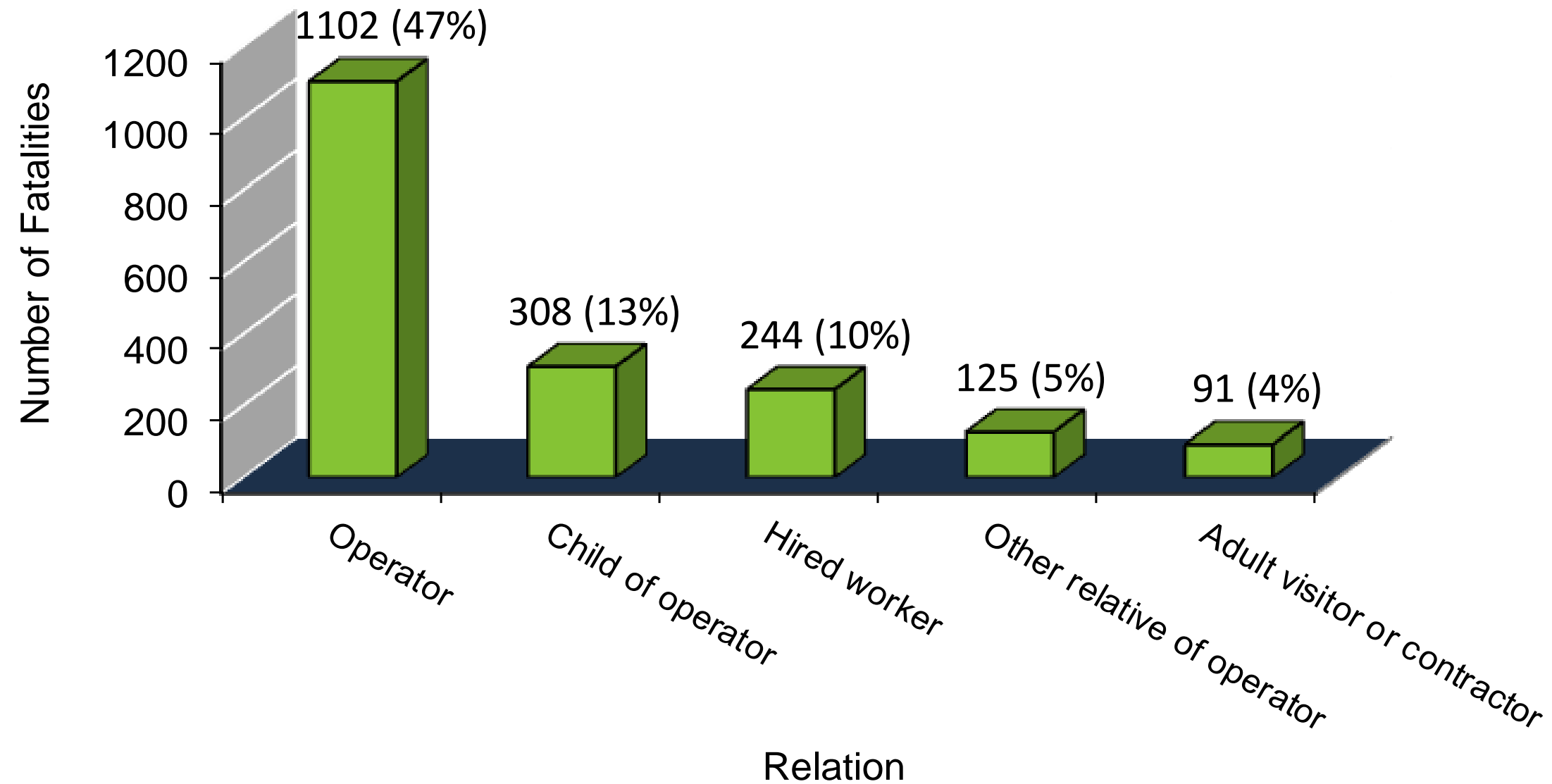


There were 1,643 machine-related agricultural fatalities in Canada from 1990 to 2012. Machine types most frequently involved in agricultural fatalities were tractors (52%), followed by motor vehicles (13%), off-road vehicles (5%), wagons and trailers (4%).

There were an additional 16 machine types with a total of 150 deaths (9%) which were not included in the above graph.

Tractors were associated with 37% of all agricultural deaths in Canada.

Canadian agricultural machine-related fatalities: relationship, 1990-2012

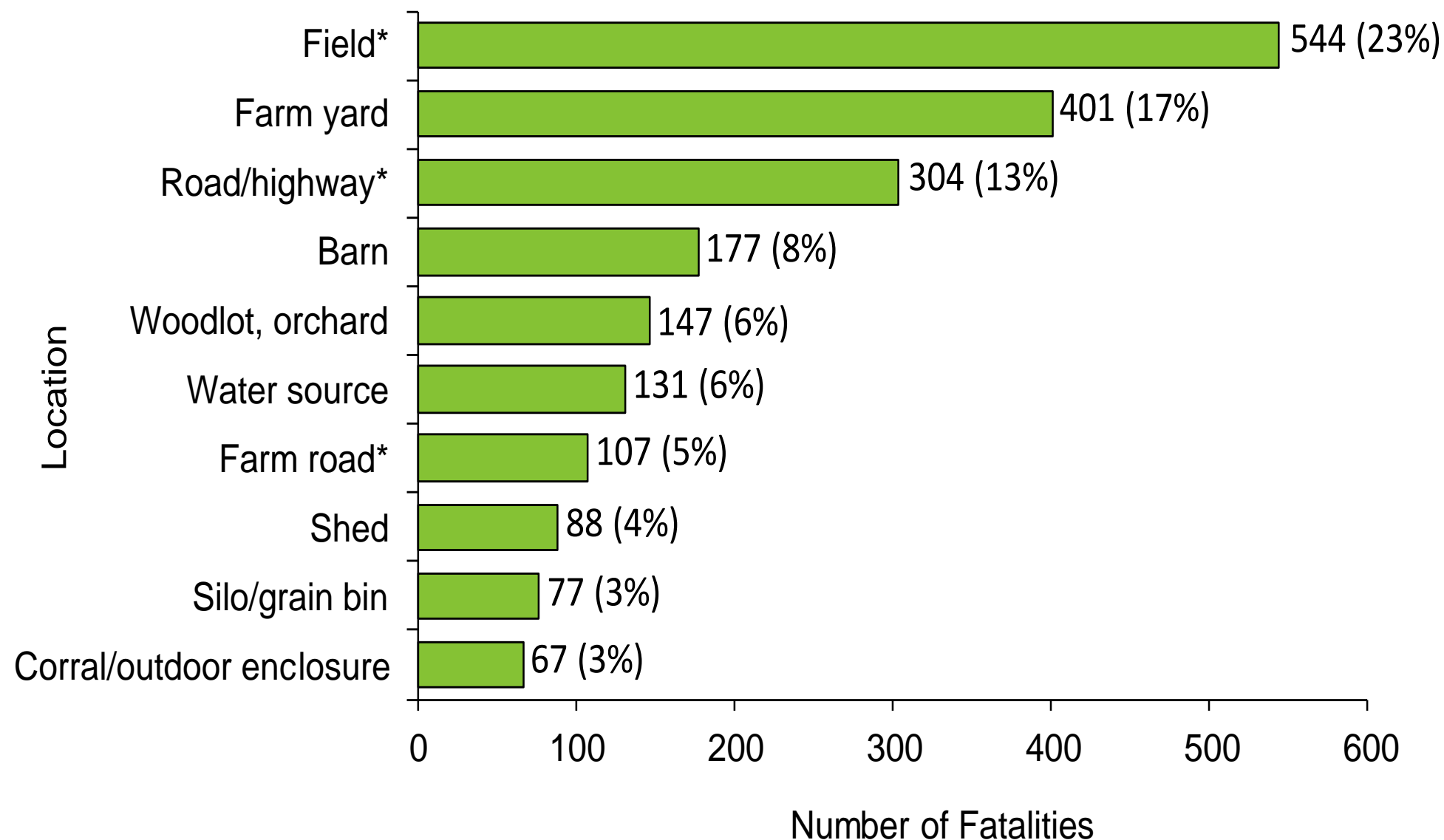


Of the 2,324 deaths where the relationship between the victim and the farm operator was known, 47% of the persons killed in agricultural injury events were farm owner/operator. A further 13% of the victims were children of farm owner/operator (of any age) and 11% were hired workers.

Of the “other relative of operator” the majority of them were identified as being the father of the operator.

There were 218 deaths (9%) in which the relationship of the decedent was unknown. There were an additional 6 relationship categories with a total of 236 deaths (10%) which were not included in the graph above.

Canadian agricultural machine-related fatalities: top 10 locations, 1990-2012



Of the 2,324 agriculture-related deaths, the most common locations for agricultural fatalities were fields (23%), farm yard (17%), road/highway (13%) and barns (8%).

There were a 150 deaths in which the location was unknown (6%). There 5 other locations with a total of 131 deaths(6%) which were not included in the above graph.

* = Includes adjacent dry ditches

- Engineering improvements are contributing to reductions
- Operator error contributing to increases
- Visitors not a major incidence group
- Fatality rate is on a slow decline
- May to November have highest # of fatalities

Acknowledgement

Colleen Drul
Data Analyst and
CAIR Collaborators Coordinator





CAIR • SBAC

Canadian Agricultural Injury Reporting
Surveillance des blessures dans le secteur agricole au Canada

Thank You

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