

Canadian Agricultural Injury Surveillance Program

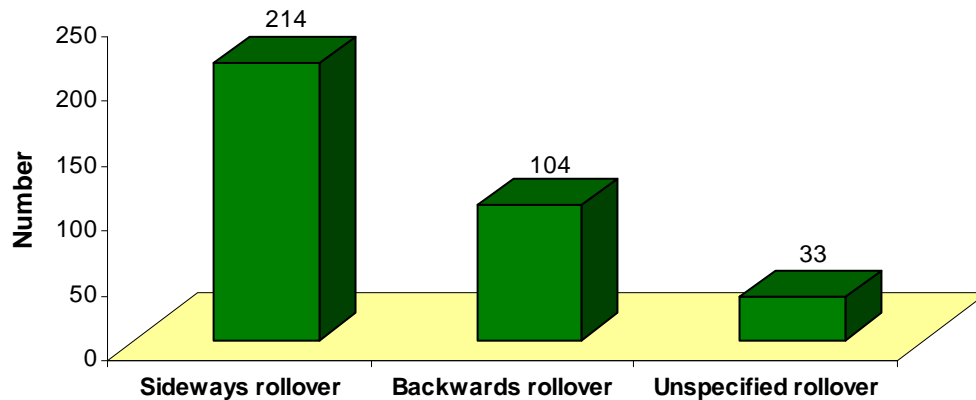
Agricultural Fatalities 1990-2004

Fast Facts: Agricultural Rollovers



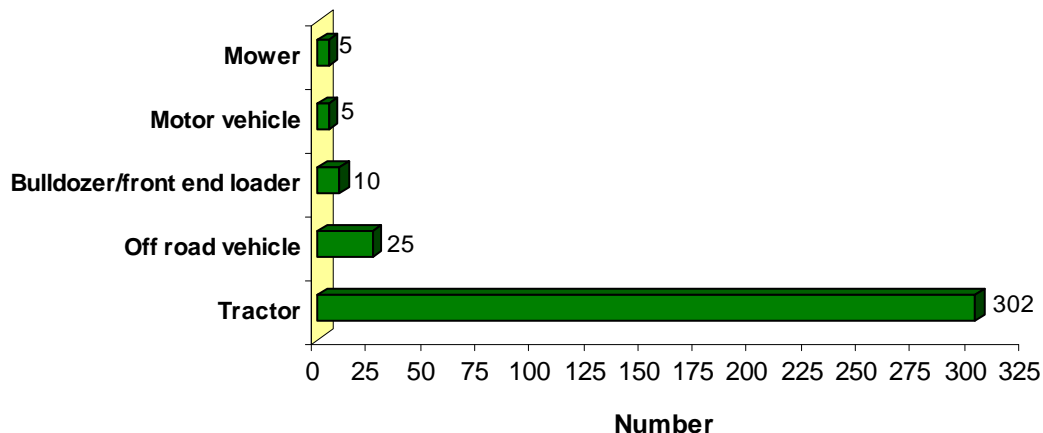
In the fifteen years from 1990 to 2004, 351 people were killed in agriculture-related machine rollovers. 95.7% of the rollover deaths occurred during agricultural work. In 94.0% of the cases, the victims themselves were working.

Type of Agricultural Rollover



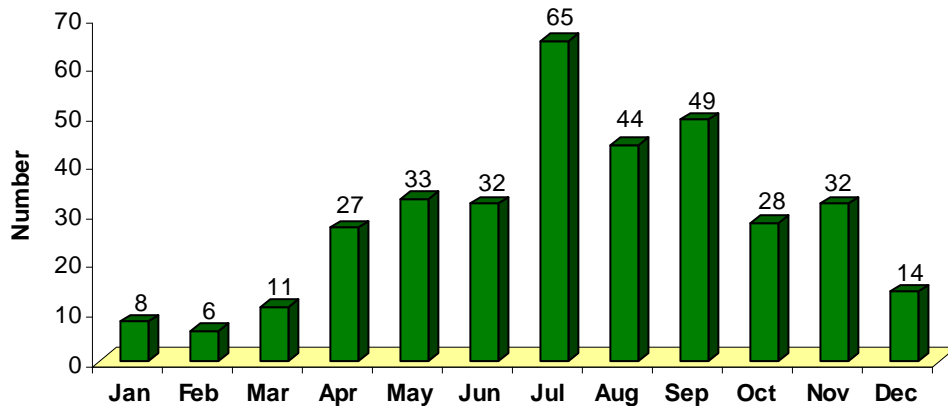
- 70.0% of the fatalities were due to sideways rollovers of tractors and other machines and 29.6% were due to backwards rollovers.

Machine Types Involved in Agricultural Rollovers



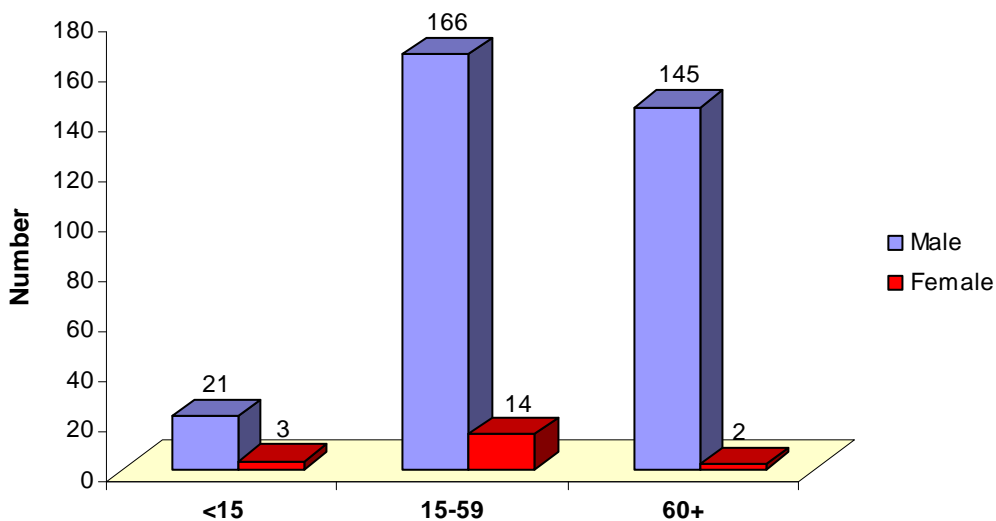
- Overall, 86.0% of the machines involved in fatal rollovers were tractors and 7.1% were off road vehicles. In children, 50% of the machines that rolled over were tractors and 33.3% were off road vehicles (ORVs).

Month of Occurrence for Agricultural Rollovers



- 45.0% of all fatal rollover events took place between July and September, with the peak in the month of July (18.5%).
- In children, 45.8% of the fatal rollovers occurred in the summer holiday months of July and August.

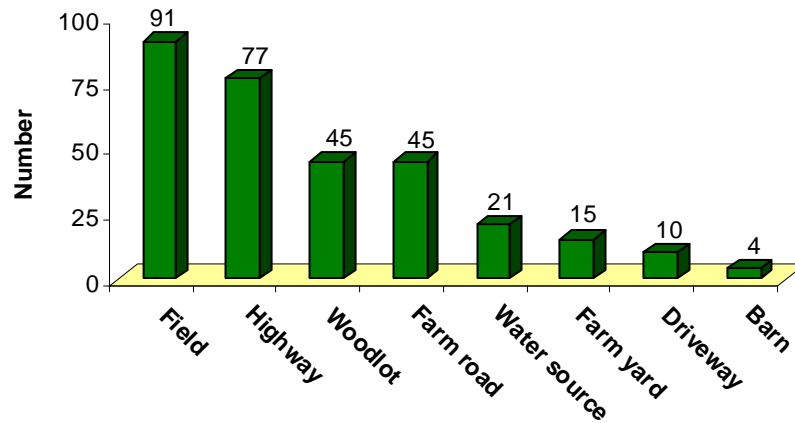
Age and Gender of Agricultural Rollover Victims



	Male	Female	Total	
<15	21	3	24	6.8%
15-59	166	14	180	51.3%
60+	145	27	147	41.9%
Total:	332	19	351	
	94.6%	5.4%		

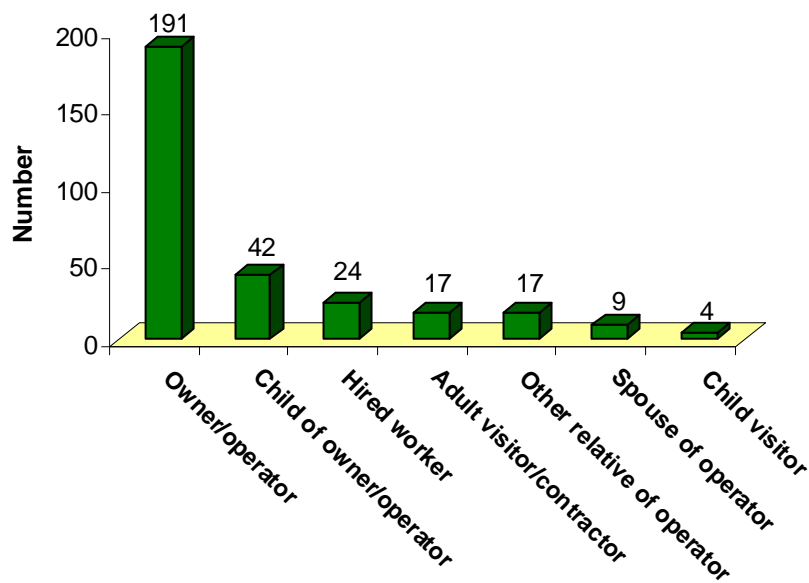
- 93.2% of those killed in machine rollovers were aged 15 or over.
- Overall, 93.2% of the fatal rollover victims were male.

Location of Occurrence for Agricultural Rollovers



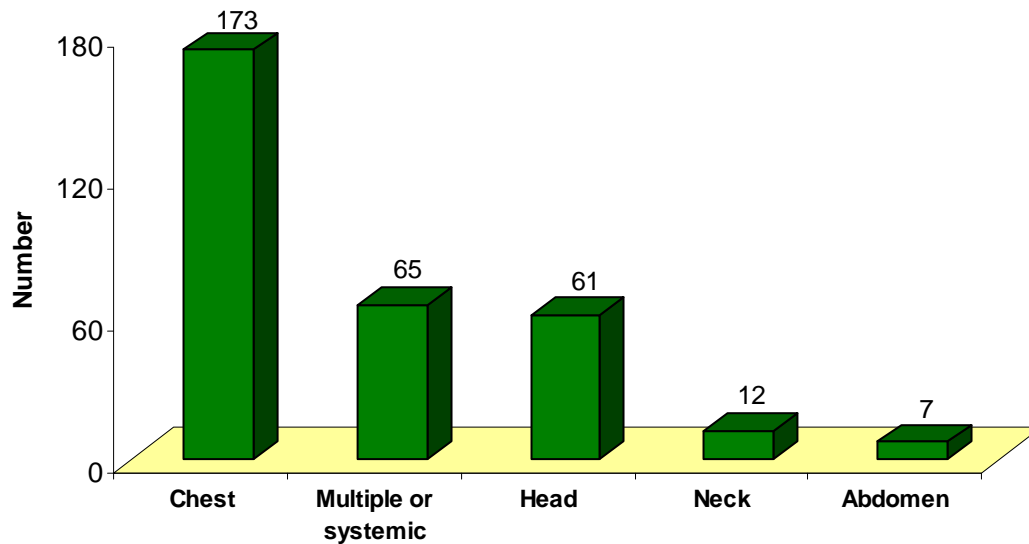
- Overall, the most common locations for machine rollovers were fields (25.9%), highways (21.9%), woodlots (12.8%) and farm roads (12.8%).
- 27.9% of the fatal backwards rollovers occurred in woodlots.

Relationship of Agricultural Rollover Victims to Owner/Operators



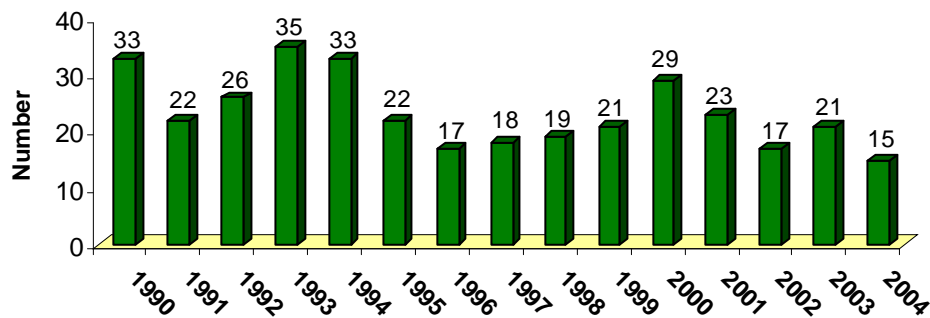
- 54.4% of those killed in agriculture-related machine rollovers were owner/operators.
- Children of owner operators were involved in 12.0% of the fatal rollovers.

Anatomic Locations of Agricultural Rollover Injuries



- 85.2% of the rollover events resulted in chest, head or multiple injuries.

15-Year Trend for Agricultural Rollovers



- Over the 15-year surveillance period, the average annual number of fatal agricultural rollovers was 23.4.
- The overall trend showed some reduction in the number of fatal agriculture-related rollovers from 1990 to 2004.

Recommendations

All Rollovers

- The use of ROPS and seatbelts by all operators would reduce rollover fatalities.
- ROPs and seat belts should be retrofitted on older tractors. In Victoria Province Australia¹, the retrofitting of ROPs (only) on tractors was estimated to have lowered the rate of tractor rollover fatalities by 67.5%.
- Most farm machines are not designed to seat passengers. Extra riders should not be taken on farm machines, as they are very likely to be killed or injured seriously in a rollover event.
- Off road vehicle operators should always wear CSA-approved safety helmets.

Sideways Rollovers

- Machine operators should stay well away from ditches at the side of roads and bordering fields.
- Operating machines on steep slopes should be avoided, if possible.
- Machine operators should not corner at excessive speeds.

Backwards Rollovers

- Due to a tractor's high centre of gravity, towing any object or vehicle can easily lead to a backwards rollover. Operators should follow manufacturers' recommendations concerning maximum towing capacity.
- A towrope or chain should never be attached beneath the seat or anywhere above the level of the draw pin.
- Poor terrain conditions such as thick mud, ice, and steep slopes affect normal towing capacity adversely and can lead to a backwards rollover.
- Dragging a tree, log, implement or other object can result in a backwards rollover if the object becomes caught while the tractor continues to drive forward.

Age Group Recommendations

Older farmers

- 40.7% of those killed in sideways rollovers and 49.5% of those killed in backwards rollovers were aged 60 or over. In older farmers, backwards rollovers most frequently occurred in woodlots during wood harvesting activities.
- Prevention programs directed at older farmers should stress the necessity for changing the types of agricultural tasks attempted, and for adapting the methods used to accomplish tasks in order to fit changing abilities and limitations.
- Older farmers tend to operate older machinery. The high number of fatal rollovers in this age group may, in part, reflect a relatively lower availability of ROPs and seat belts due to the age of the tractors used.

Children

- According to NAGCAT², children under 12 should not operate tractors of any size, including lawn tractors.
- Tractors over 70HP should not be operated by children aged 12 to 14. Between 1990 and 2004, five 12 to 14 year olds were killed in rollovers while operating full-sized tractors.
- Off road vehicles, such as ATVs, should only be driven at low speeds. They should not be operated on steep slopes or used to perform stunts. Whereas ORVs were involved in only 10% of all fatal rollovers, they were cited in 33.3% of the fatal rollovers in children. Only one of the fatal ORV rollovers involving children was work related.

¹Day, L. and G. Rechnitzer (April 2006). *Evaluation of the tractor rollover protective structure rebate scheme 1997/1998*. Monash University Accident Research Centre Report Number 155.

²<http://www.nagcat.org/nagcat/pages/default.aspx>

