WORK-RELATED INJURIES AND FATALITIES ON AUSTRALIAN FARMS

MARCH 2013

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ISBN 978-0-642-78727-9 [PDF]

978-0-642-78728-6 [DOCX]

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Foreword

From a health and safety point of view, farms are unique. While other industries share some of the hazards of farming such as plant, chemicals, noise, dust, sun exposure and working with animals, the combination of hazards found in farming as well as the context in which farm work is done, make farming one of the most dangerous industries in which to work.

Agriculture has the highest proportion of self-employed workers of any industry. Self-employed farmers face the demands and stress of running a business as well as undertaking the hard physical labour involved in farm work.

Farm workers often work alone. There are fewer opportunities for sharing practices, observing and learning from others. Farm workers are often at a distance from help or first aid should an incident occur. If a farmer is injured or trapped there are often no workmates to assist and to get medical help.

In addition to being places of work, farms are unique in that they are also homes, often with children.

The Agriculture sector also employs a higher proportion of older workers than any other industry. While increasing age brings increased experience and skills, it also brings a diminution in some areas – reflexes are not as quick, physical strength is lessened, hearing is not as sharp. Jumping on and off a tractor while it is in gear is a preventable risk at any age but doing so at 60 or more will increase the likelihood of serious or even fatal consequences.

This report draws together a profile of Australian farmers and documents important trends in fatalities and injuries that occur on Australian farms. At the end of this report are potential avenues for improving the work health and safety of Australian farmers and farm workers in the context of the *Australian Work Health and Safety Strategy 2012–2022.*

Contents

Summary of findings

The Agriculture sector employed 306 700 workers in 2010–11 with 46% of them self-employed. Over half of Agriculture workers were employed farming sheep, beef cattle or grain.

This report uses a range of data sources to provide a profile of the types and frequency of work-related injuries and fatalities that incurred on Australian farms. These data indicate that while males accounted for 67% of workers, they accounted for 92% of the fatalities, 85% of the hospitalisations and 77% of the workers' compensation claims in the Agriculture sector.

All sources point to the dangers involved with farm equipment and machinery as well as working with animals. The fatalities and hospitalisations data show the much higher risk of serious injury to older farm workers. These workers are mostly self-employed and are not covered by workers' compensation. Nevertheless, the workers' compensation data provides a more detailed look into the types of farms where employees have incurred injuries.

Work-related fatalities

Over the eight years from 1 July 2003 to 30 June 2011, 356 workers died while working on a farming property. This is 17% of all worker fatalities. Nearly one-third of the worker fatalities on farms were workers aged 65 years or over.

Incidents involving vehicles accounted for 71% of fatalities on farms. Tractors were involved in 93 (26%) farm deaths, aircraft were involved in 48 (13%), light vehicles were involved in 28 (8%) and quad bikes were involved in 27 (8%). Of the incidents that did not involve a vehicle the most common involved being hit or bitten by an animal (18) and falling from a horse (11). There were also 9 fatal shootings while workers were attempting to remove vermin from around properties or destroying farm animals.

Work-related injuries

A survey of Agriculture workers in 2009–10 found 17 400 had incurred a work-related injury or illness in the previous 12 months. This equates to 56.4 injuries per 1000 workers which is slightly lower than the all industries rate of 57.9.

Employees (non-self-employed) in the Agriculture sector are eligible for workers' compensation when injured at work. In 2009–10, 4660 claims for compensation from this sector were accepted around Australia, 39% of these involved less than one week off work.

One-quarter of claims involved *Body stressing* which includes musculoskeletal stress due to handling or lifting objects. Of these claims 29% were due to handling non-powered tools and equipment, 15% from working with animals and 11% working with mobile plant and transport.

Being hit by an animal accounted for 9% of claims and *Being hit by moving objects other than an animal* accounting for 18% of claims.

Falls accounted for 21% of claims. These claims were mainly due to hazardous ground surfaces (41%) and 18% were due to falls from mobile plant and transport.

Within the Agriculture sector, the highest incidence rate of injury was recorded by Other livestock farming (102.5 claims per 1000 employees). This was nearly three times the rate for the whole of the Agriculture sector (35.5). The Other livestock farming sector accounted for 4% of Agriculture employees and includes the farming of animals such as pigs, horses, dogs, cats and goats. The Poultry farming sector recorded the lowest incidence rate of 20 claims per 1000 employees

Young workers, those aged less than 25 years, recorded the highest rate of compensated injury with 52 claims per 1000 employees. Injury rates decreased with age down to 13.2 claims per 1000 employees for those aged 65 years or older. However, workers in this oldest age group who are eligible for workers' compensation account for just 3% of all Agriculture workers and just 6% of employees in the Agriculture sector. Therefore the rates of injury for older workers may be understated.

Overall 22% of claims were due to working with animals, 19% from working with mobile plant and transport and 18% from working with non-powered tools and equipment.

Work-related hospitalisations

Approximately 4400 workers on farms were hospitalised for a work-related injury in the three-year period from July 2006 to June 2009. This is 6% of all workers who were hospitalised.

The most common reasons for being hospitalised were *Contact with agricultural machinery, Motorcycle transport accident* or *Bitten or struck by cattle* each accounting for 9% of farm hospitalisations. Since males accounted for 85% of the farm hospitalisations, the pattern for males was similar. However, females showed a different pattern. Over the three-year period from July 2006 to June 2009, 13% of farm hospitalisations involved females who had been injured in a horse-related incident with a further 6% having been *Bitten or struck by horse* and 10% *Bitten or struck by cattle.*

Workers aged 65 years and over accounted for 12% of farm hospitalisations. This proportion is four times the proportion this age group represents of hospitalisations across all places of work (3%).

Young workers had more hospitalisations for a motorbike or horse-related incident or from coming into contact with a sharp object such as a knife while older workers had more hospitalisations from contact with machinery.

One-third (33%) of farm hospitalisations involved *Fractures*. This was slightly higher than the proportion *Fractures* comprised of all work-related hospitalisations (27%). The proportion that *Fractures* represented of all farm hospitalisations increased with age from 28% of hospitalisations of farm workers in the 15–24 years age group to 37% of those in the 65 years and over age group.

A profile of workers on farms

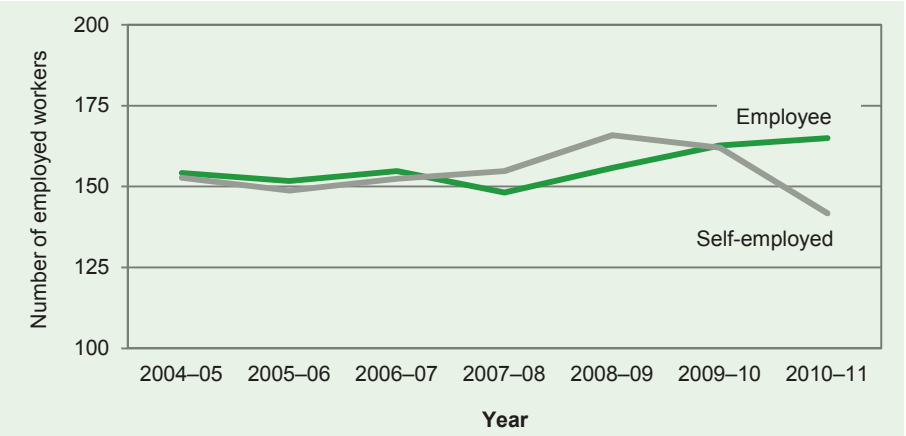
Workers on farms in Australia are mostly employed in the Agriculture sector. In addition a small number of workers come from the Agriculture and fishing support services sector and from other industries such as Manufacturing and Transport to work periodically on farms in assisting with fertilising, spraying, mustering or just making general deliveries to the working property. Unfortunately Safe Work Australia does not have data on the number of workers on farms whose usual employment is in an industry outside of the Agriculture, forestry & fishing industry. Therefore this section will only provide a profile of workers in the Agriculture and Agriculture & fishing support services sectors.

Employment in the Agriculture sector

In 2010–11 there were 306 700 people working in the Agriculture sector, 2.8% of the national workforce. Two-thirds (67%) of the workers were male. While there has been little change in the total number of workers in this sector since 2004–05, Figure 1 shows that the proportion of workers who are self-employed has fallen from 50% in 2005–06 to 46% in 2010–11 with a corresponding increase in the number of people working for someone else (employees).

Self-employment in Agriculture is falling but the number of employees is rising

Figure 1: Agriculture: number of workers by employment status, 2004–05 to 2010–11



Employment by farm type

Labour Force Survey (LFS) data from the Australian Bureau of Statistics (ABS) for 2010–11 shows that half (53%) of all workers in the Agriculture sector worked in Sheep, beef cattle and grain farming. Table 1 shows that within this sector most were self-employed: 32% of all Agriculture workers were self-employed Sheep, beef cattle & grain farmers compared with 21% who were employees.

Half of all Agriculture workers farm sheep, beef cattle or grain

In addition there were 20 900 people working in the Agriculture & fishing support services sector of which 37% were self-employed. These people were working as aerial crop dusters, musterers, fruit pickers and hay balers. Employment in this sector has fallen 8% in the past five years.

Table 1: Agriculture: proportion of workers by industry group and employment status, 2010–11

Agriculture sector	Proportion of workers		
	Employee	Self-employed	Total
Sheep, beef cattle & grain farming	21%	32%	52%
Fruit & tree nut growing	9%	3%	12%
Dairy cattle farming	6%	5%	11%
Nursery & floriculture production	4%	1%	6%
Mushroom & vegetable growing	5%	1%	6%
Other livestock farming	3%	2%	5%
Poultry farming	3%	1%	4%
Other crop growing	2%	2%	4%
Total Agriculture	**54%**	**46%**	**100%**

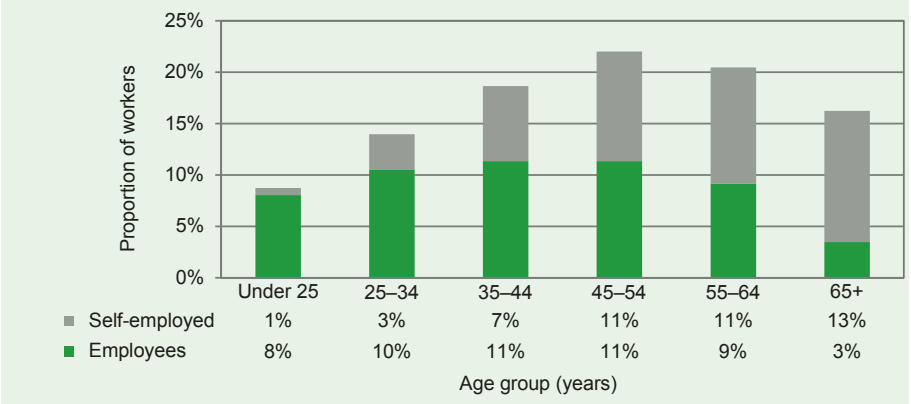
There is some state/territory variation in the type of agriculture being undertaken. This is to be expected considering the different climates and environments in these regions. For instance, 62% of Agriculture workers in New South Wales were employed in the Sheep, beef cattle & grain farming sector. These workers account for 32% of all in the Sheep, beef cattle & grain farming workers. New South Wales also accounted for 55% of the employment in the Poultry farming sector in 2010–11.

Agriculture workers in Victoria accounted for 67% of employment in the Dairy cattle farming sector while Agriculture workers in Queensland accounted for 85% of the employment in the Other crop growing sector due to the sugar cane industry.

Employment by age group

Figure 2 shows the profile of workers in the Agriculture sector by age group and employment status for 2010–11. These data show the proportion of workers in each age group increased up to 54 years where it began to decline. However the proportion of workers aged 65 years and over remained higher than the proportion of workers in the 25–34 years age group. Workers in this oldest age group accounted for 16% of Agriculture workers and nearly all of them were self-employed workers. In contrast workers under the age of 25 years were predominantly employees.

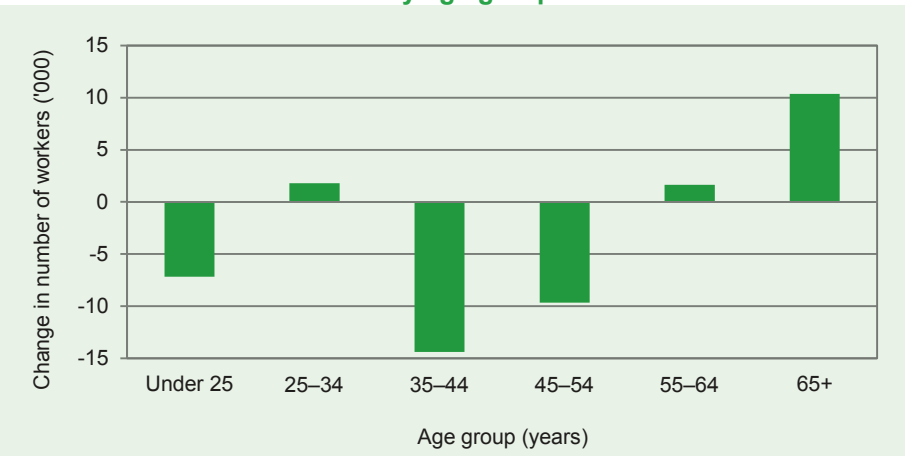
Figure 2: Agriculture: proportion of workers by employment status and age group, 2010–11



Agriculture is an aging sector

Figure 3 shows the change in the number of workers from 2004–05 to 2010–11 by age group. These data show that there has been a rise in the number of Agriculture workers aged 65 years and over but falls in most of the younger age groups. This pattern indicates an aging workforce in the Agriculture sector.

Figure 3: Agriculture: change in the number of workers between 2004–05 and 2010–11 by age group



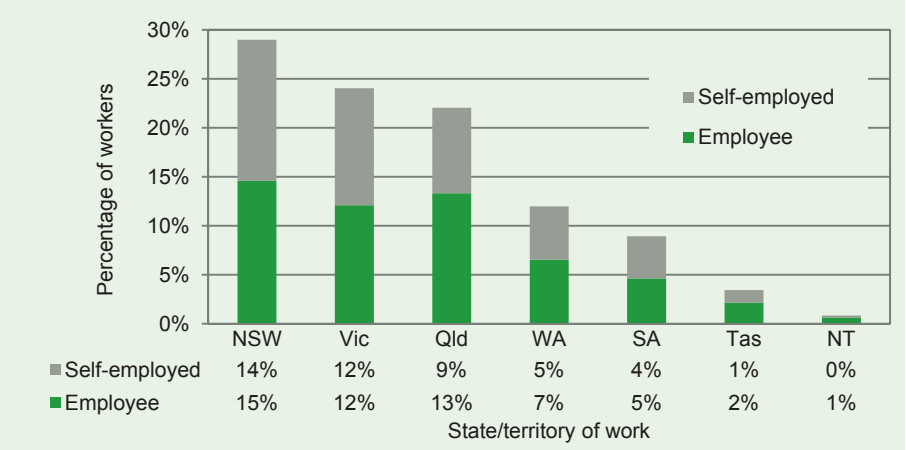
Employment by state/territory

Figure 4 shows that employment in Agriculture follows the same pattern by state/territory as the general population with New South Wales accounting for the highest proportion of workers (29%) and the Northern Territory the lowest (1%).

Half of the Agriculture workers in New South Wales and Victoria were self-employed

In New South Wales and Victoria self-employed workers made up half of the Agriculture workforce in 2010–11 while in all other regions the proportion of workers that were Employees was larger than the proportion that were Self-employed. Queensland and Tasmania had the highest proportions working as Employees (60% and 63% respectively compared with 54% nationally).

Figure 4: Agriculture: proportion of workers by employment status and state/territory, 2010–11



Employment in the Agriculture & fishing support services sector

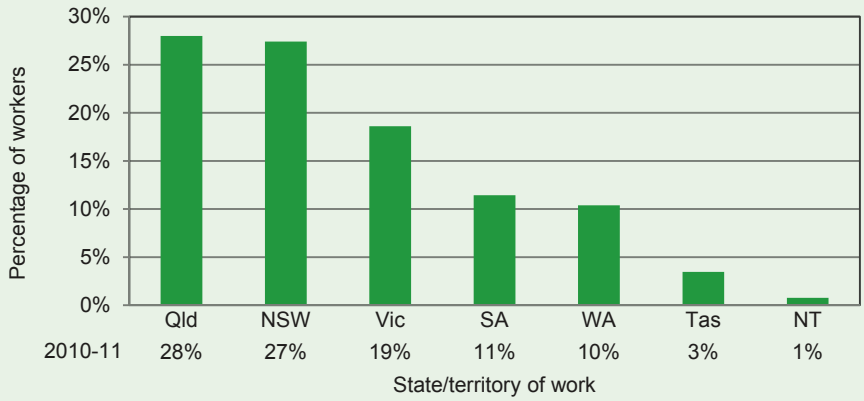
Other workers come onto farms to assist

There are a number of other workers who come onto agriculture properties from time to time to assist with specialised activities. The main group of workers are those in the Agriculture & fishing support services sector which employed 20 900 workers in 2010–11. This is approximately 7% of the size of the Agriculture sector. The Agriculture & fishing support services sector includes workers involved in cotton ginning, shearing, aerial spraying and mustering, fertilising and fruit picking. Not all of these activities require the worker to work on a farming property. However no information is available which would allow the estimation of the proportion of workers who undertake work on farms.

The Agriculture & fishing support services sector has a lower proportion of self-employed workers than the Agriculture sector. In 2010–11, one-third of workers in this sector were self-employed compared with nearly half in the Agriculture sector.

Figure 5 shows Queensland and New South Wales were the states with the highest proportion of workers in this sector accounting for 28% and 27% respectively. These data should be used with caution due to high relative standard errors associated with the LFS data. No reliable information by age group can be obtained.

Figure 5: Agriculture & fishing support services: proportion of workers by state/territory, 2010–11



Worker fatalities

Over the eight years from 1 July 2003 to 30 June 2011, 480 workers employed in the Agriculture, forestry & fishing industry were killed while working. This represented 22% of all workers killed in Australia during that time period.

The Agriculture sector alone accounted for 350 of the worker fatalities: 73% of all worker fatalities in the Agriculture, forestry & fishing industry and 16% of worker fatalities across all industries.

Table 2 shows a breakdown of the number of fatalities within the Agriculture, forestry & fishing industry and the associated fatality rates. In 2010–11 the Agriculture sector recorded a fatality rate of 15.33 deaths per 100 000 workers which is more than eight times the rate across all industries (1.93 deaths per 100 000 workers).

This is not the highest rate within the Agriculture, forestry & fishing industry. The Agriculture, forestry & fishing support services sector recorded a rate of 28.71 deaths per 100 000 workers and the combined sectors of forestry and fishing recording a rate of 29.45 deaths per 100 000 workers. Deaths in these two sectors accounted for around one-quarter of deaths in the industry over the eight years shown.

Table 2: Worker fatalities: Number and fatality rate for the Agriculture, forestry & fishing industry, 2003–04 to 2010–11

Industry of employer	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11
	Number of work-related fatalities							
Agriculture	63	43	44	34	43	39	36	48
Agriculture, forestry & fishing support services	5	7	7	6	4	12	5	7
Forestry & fishing*	11	15	7	7	10	19	1	6
Total Agriculture, forestry & fishing	**79**	**65**	**58**	**47**	**57**	**70**	**42**	**62**
	Fatality rate (fatalities per 100 000 workers)							
Agriculture	19.90	14.01	14.64	11.10	14.29	12.28	11.08	15.33
Agriculture, forestry & fishing support services	18.58	27.28	27.41	23.99	13.91	52.96	21.07	28.71
Forestry & fishing*	47.12	61.28	31.66	36.53	43.82	108.98	4.84	29.45
Total Agriculture, forestry & fishing	**21.54**	**18.20**	**16.66**	**13.41**	**16.17**	**19.57**	**11.38**	**17.36**

*Includes Aquaculture, Forestry & logging and Fishing, hunting & trapping

One in six workers killed while working were killed on a farm

The data in Table 2 above shows the number of fatalities by the industry in which the deceased worker was employed. In the case of Agriculture workers, some fatalities did not occur on the working property. The details in the fatalities database (See Explanatory Notes) allows for the identification of deaths which occurred on farms. This database shows that over the eight years from 1 July 2003 to 30 June 2011, 356 workers died while working on a farming property. This is 17% of all worker fatalities or expressed differently, one in six workers killed over the past eight years was working on a farm at the time of the incident.

Table 3 shows that of the workers who died while working on a farm, 81% (289) were employed in the Agriculture sector. The Agriculture workers who died while away from the farming property were mostly killed in a work-related vehicle incident on a public road.

Table 3 shows that 10% (36) of the workers who were killed on farms were employed in the Agriculture & fishing support services sector. This sector accounted for 11% of fatalities in the Agriculture, forestry & fishing industry. Over the eight years from 1 July 2003 to 30 June 2011, 53 workers in this sector have been killed with 36 (64%) dying in an incident on a farm. These workers were mainly engaged in aerial spraying and mustering.

The remaining 9% (31) of farm deaths involved workers who were employed in other industries but were working on the property at the time of the incident that caused their death. Of these 9 had come to the property to deliver farming equipment or materials or to pick them up, 5 were assisting with spraying operations, 4 had come to the property to repair equipment and 4 were undertaking gardening activities such as mowing and tree lopping.

Table 3: Worker fatalities: Number by location (farm or non-farm), 2003–04 to 2010–11

	Number of work-related fatalities								
	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	TOTAL
Farm	**60**	**46**	**46**	**31**	**47**	**38**	**37**	**51**	**356**
Agriculture	54	35	36	25	39	27	31	42	289
Agriculture & fishing support services	4	4	5	2	3	7	5	6	36
Other industries	2	7	5	4	5	4	1	3	31
Non-farm	**210**	**208**	**244**	**269**	**245**	**251**	**183**	**169**	**1 779**
Agriculture	9	8	8	9	4	12	5	6	61
Agriculture & fishing support services	1	3	2	4	1	5	0	1	17
Other industries	200	197	234	256	240	234	178	162	1 701
Total fatalities	**270**	**254**	**290**	**300**	**292**	**289**	**220**	**220**	**2 135**

It is not possible to calculate farm fatality rates accurately as it is not known how many workers who are not employed within the Agriculture sector work on farming properties at any particular time. The data in Table 3 shows that 83% of the Agriculture fatalities and 68% of the Agriculture & fishing support services fatalities occurred on a farm. For all other sectors 2% of fatalities occurred on a farm.

Farm deaths by age

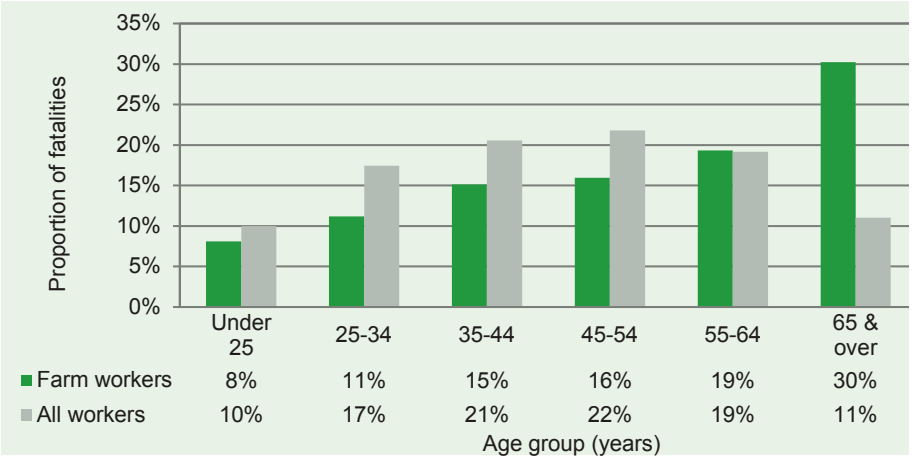
The following analysis profiles the 356 fatalities that occurred on farms in the eight years to 2010–11. Males accounted for 92% of the fatalities (328) and there were 28 (8%) female workers killed.

Workers aged 65 and over accounted for 30% of fatalities on farms

Figure 6 shows an increasing proportion of worker fatalities with age. Workers aged 65 years and over accounted for 30% of all fatalities on farms in the eight years. This is nearly three times the proportion this age group represents of all worker fatalities.

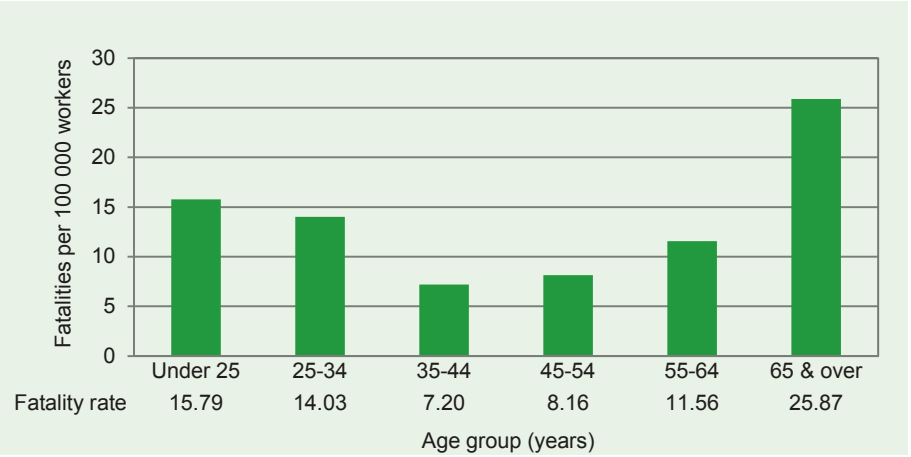
For the 55–64 years age group similar proportions were recorded for those working on farms and for all workers, while for all younger age groups the proportion of deaths occurring on farms was lower than for all workers. These data show that there is a greater risk of death for older workers on farms than for the wider working population.

Figure 6 Worker fatalities on farms: Proportion by age group, 2003–04 to 2010–11 combined



While it is not possible to calculate fatality rates for all farm workers Figure 7 shows the rates for Agriculture workers who died due to an incident on a farm. These data show that Agriculture workers aged 65 years and over had nearly twice the fatality rate of workers under 25 years of age and more than four times the rate for workers in the middle age groups.

Figure 7 Fatalities on farms involving Agriculture workers: Fatality rate by age group, 2008–09 to 2010–11 combined



Common causes of farm deaths

Vehicle crashes accounted for 44% of fatalities on farms

Workers on farms are killed in a variety of ways. Table 4 shows that *Vehicle incident* accounted for 43% of deaths on farm. A *Vehicle incident* includes any type of vehicle traveling around the farming property or in the air above the property in which the occupant of that vehicle is killed.

The non-Agriculture sectors recorded much higher proportions of *Vehicle incident* than the Agriculture sector as many workers coming onto farming properties do so in vehicles to assist with mustering or aerial spraying. In the Agriculture & fishing support services sector 72% of the fatalities involved a *Vehicle incident* with 22 of the 26 workers killed in crashes involving air craft.

Of the workers who were employed in other sectors, 52% of fatalities involved a *Vehicle incident* with 7 involving aircraft, 3 involving a tractor and 3 involving a truck.

Table 4: Worker fatalities: Number by farm sector, 2003–04 to 2010–11 combined

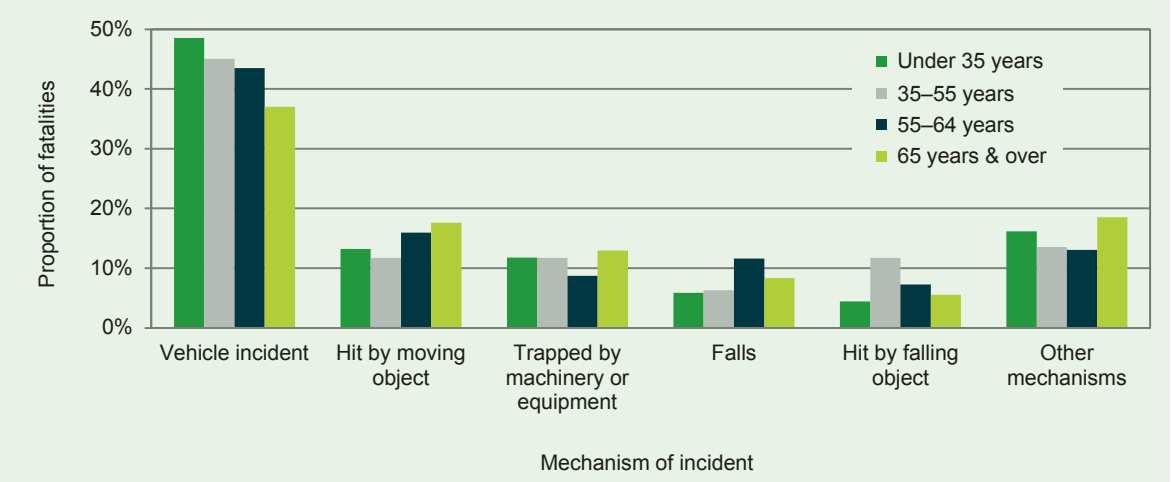
Mechanism	Workers in Agriculture	Workers from A&F support services	Workers from Other sectors	Total	Percentage of total
Vehicle incident	112	26	16	154	43%
Hit by moving object	49	0	3	52	15%
Trapped by machinery or equipment	32	2	5	39	11%
Hit by falling objects	23	1	3	27	8%
Falls	20	5	2	27	8%
Hit or bitten by animal	17	1	0	18	5%
Contact with electricity	16	0	1	17	5%
Other mechanism	20	1	1	22	6%
Total	**289**	**36**	**31**	**356**	**100%**

Many farm workers were killed after being *Hit by moving object*. Of the 52 fatalities due to this cause, 34 (65%) involved vehicles with tractors being the most common. Tractors were also involved in many of the deaths resulting from *Trapped by machinery or equipment*. It is clear therefore that vehicles are implicated in the vast majority of fatalities on farms. This will be explored in more detail in the next section.

The proportion of workers killed in vehicle incidents decreased as worker age increased

Figure 8 shows the ways workers have been killed by age group. These data show that the proportion of workers killed decreased with age for *Vehicle incident* deaths from 49% of deaths in workers aged Under 35 to 37% of deaths of workers aged 65 years and over. The proportion who were *Hit by moving object* (which mainly involve vehicles) increased from 13% to 18% with age. These data also indicate that the proportion of workers who died after being *Trapped by machinery or equipment* was similar across the age groups but that those aged 55 and over had a greater proportion of deaths due to *Falls*.

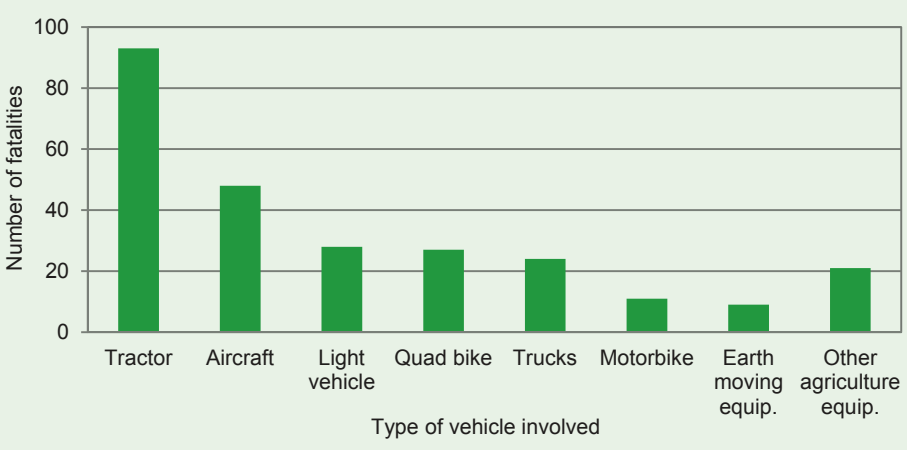
Figure 8 Worker fatalities on farms: Proportion by mechanism of incident and age group, 2003–04 to 2010–11 combined



Deaths from working with vehicles

Vehicles were involved in 71% (251 fatalities out of 356) of the incidents on farms. Figure 9 shows that over the eight years 93 workers (26% of farm deaths) died in incidents involving a tractor, 48 (13%) in aircraft incidents, 28 in incidents involving a light vehicle such as a car or utility and 27 (8%) in incidents with quad bikes. While 86% of incidents involved only one vehicle, some incidents involved two or more vehicles. Each vehicle is counted separately in the following analysis.

Figure 9 Worker fatalities involving vehicles on farms: Number by type of vehicle involved, 2003–04 to 2010–11 combined



Deaths from working with tractors

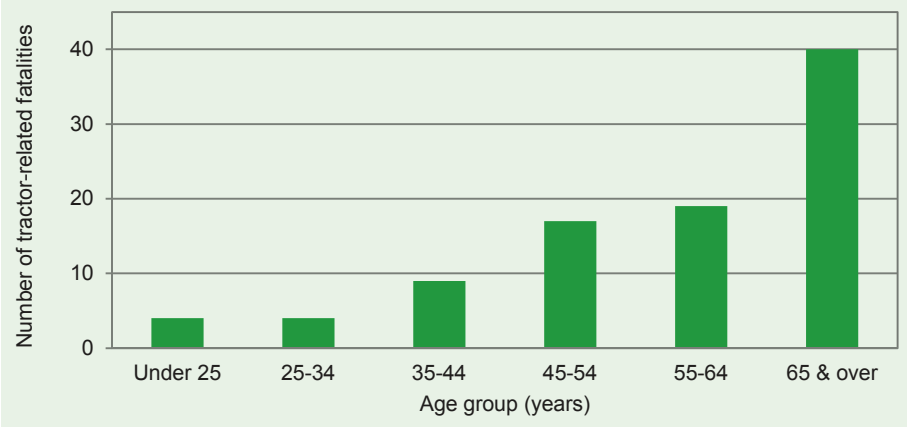
11 workers die each year on a farm from working with a tractor

The 93 tractor-related fatalities equates to 11 workers being killed each year while working with or around a tractor. While this is a considerable fall on the average of 25 deaths per year found in a study undertaken over the 1989–92 period[1] similar types of incidents are still claiming lives.

Workers aged 65 years and over accounted for 43% of tractor-related fatalities

Figure 10 shows that the number of tractor-related fatalities increased with worker age. Workers aged 65 years and over accounted for 43% of the tractor-related deaths which is considerably higher than the 29% this age group represents of all farm deaths.

Figure 10 Worker fatalities involving tractors on farms: Number by age group, 2003–04 to 2010–11 combined

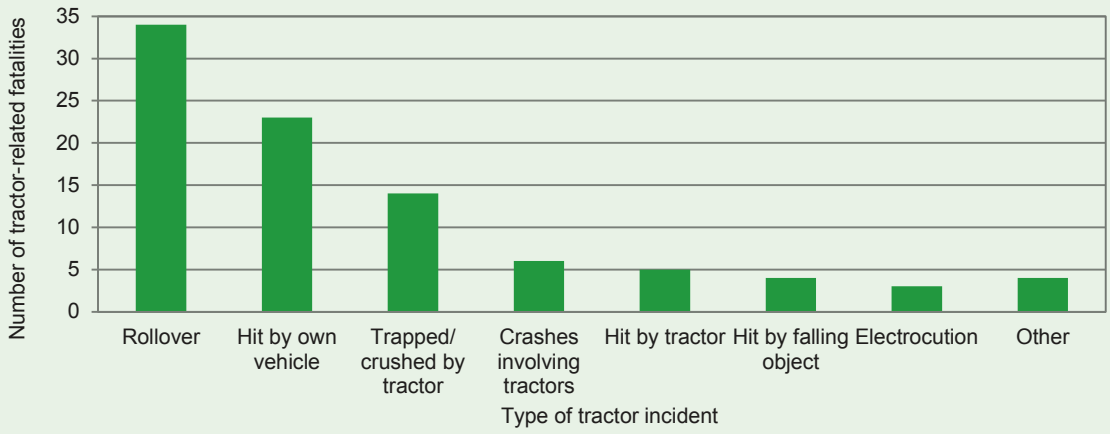


1 Work-related fatalities involving tractors in Australia 1989 to 1992 http://www.safeworkaustralia.gov.au/sites/SWA/AboutSafeWorkAustralia/Whatwedo/Publications/Pages/ACSR200007FatalitiesInvolvingTractors.aspx

One third of tractor-related incidents involved a rollover and one quarter involved being hit by their own tractor

Figure 11 shows that just over one third (37%) of tractor-related incidents involved a rollover and one quarter involved the worker being hit by their own tractor. There were also 14 tractor-related incidents that involved the worker being trapped or crushed by a tractor. Each of these types of tractor incidents will be discussed in more detail below.

Figure 11 Worker fatalities involving tractors on farms: Number by type of incident, 2003–04 to 2010–11 combined



Rollovers

For thirty years it has been mandatory for all newly manufactured tractors to be fitted with a Rollover Protection Structure (ROPS). While rebates were offered to retrofit ROPS to existing tractors, many older tractors are still in use without ROPS. This significantly increases the likelihood of being crushed by the tractor in the event of a rollover. A previous study undertaken by Safe Work Australia[2] concluded that around 4 tractor deaths could be prevented each year by the installation of ROPS.

Workers aged 65 and over account for half of the fatalities from a tractor rollover

Workers aged 65 years and over accounted for 50% of the rollover fatalities (17 of 34 rollover deaths). There was only 1 incident where a worker under 35 years of age was killed in a tractor rollover.

Typical tractor rollover cases include:

An 83 year old worker was slashing grass with a 40 year old tractor when he went too close to the embankment and rolled into a dry creek bed. His son had purchased ROPS but it had not been fitted.

A 75 year old worker was killed when his tractor rolled over while traveling up a steep incline.

A 69 year old worker was killed when his tractor rolled down an embankment. ROPS had been temporarily removed to fit mud guards.

A 62 year old worker was killed while pulling out trees. A chain attached to the rear of the tractor was wrapped around the tree and as the tractor was driven forward it lifted at the front and flipped backwards crushing and trapping him underneath. The tractor was equipped with neither a roll bar nor safety cage.

2 Fatalities due to working with tractors, Australia 2003–04 to 2006–07 http://www.safeworkaustralia.gov.au/sites/SWA/AboutSafeWorkAustralia/WhatWeDo/Publications/Pages/FatalitiesDuetoWorkingwithTractors2003-04to2006-07.aspx

Being hit by tractor

Four workers are killed each year after being hit by their own tractor

Over the eight year period considered in this report 23 workers have been killed after being hit by their own tractor. This equates to around 4 deaths per year. In 52% of the cases the worker was aged 65 or older. In many instances the tractor was not braked properly while the worked jumped off to open a gate or move a hay bale and they were unable to regain access to the tractor while it was moving. The previous tractor study concluded that if tractors were fitted with a Safe Tractor Access Platform (STAP), 2 deaths from this cause could be prevented each year.

Typical cases where workers are killed after being hit by their own tractor include:

> *An 86 year old worker was run over by his tractor when he tried to jump back onto it when it started to roll away.*
>
> *It appears that due to a battery fault, the deceased used another battery to jump start the tractor. Investigations show the tractor was in gear and started when jumper leads were applied running over victim who was then pinned against a tree by the wheel of the attached spray unit.*
>
> *The deceased worker was found trapped under the rear tractor wheel. He had been plowing a field and appears to have put the tractor in idle and put on the handbrake and then alighted. The tractor was on an incline and it has moved running over the deceased.*
>
> *The worker was using a tractor to move a hay bale to a feed lot for cows. He disembarked the tractor to cut bindings and the tractor rolled forward and pinned him up against fence post.*

Three other workers were hit and killed by tractors they were not driving. Of these two were hit by reversing tractors and the third happened as follows:

> *A tractor was coming up a roadway with a bag of pallets on the forklift tine attachment on the front of the tractor and the tractor ran into the deceased.*

There were also 2 workers who were riding on attachments that were being towed by a tractor when a fatal incident occurred. In one case:

> *A 38 year old worker was riding on hay bale trailer that was fully loaded with hay and being towed up a hill by a tractor. The draw bar connecting the trailer to the tractor snapped and the trailer rolled back down the hill. The worker has either jumped off or fallen off the back of the trailer and been crushed under the back wheels of the trailer.*

Trapped or crushed by tractor

Of the 14 workers who were trapped or crushed by a tractor, 8 were undertaking repairs to the vehicle at the time and 6 occurred while loading or unloading the tractor.

Descriptions of some of the cases include:

A 28 year old worker was refilling a tank attached to a tractor for spraying purposes when he has slipped onto the unguarded power take off drive (PTO). His clothes have caught in the PTO and dragged him into the machine

A farmer was standing on the back of a twin fork attachment to his tractor when he has reached into cabin of the tractor to change gears and was crushed between the tractor and the attachment.

On a tractor when the engine is switched off, the slasher's hydraulics gradually loose pressure so that the slasher is gradually lowered to the ground. In this instance a 41 year old worker placed himself under a slasher to undertake repairs but did not insert any pins or chocks to keep it in a raised position. He was crushed when the slasher lowered onto him.

Other tractor incidents

There were a further 17 workers killed in incidents involving tractors. Three of these involved electrocutions, including 2 where the tractor was used to move a windmill and came into contact with overhead power lines. There were 4 deaths due to being *Hit by falling object* while using a tractor, including 2 who were hit by falling trees. There were 5 crashes other than rollovers that resulted in fatal injuries including 3 where the tractor hit a tree and 1 where the tractor ran into a train that was on tracks that went through the property.

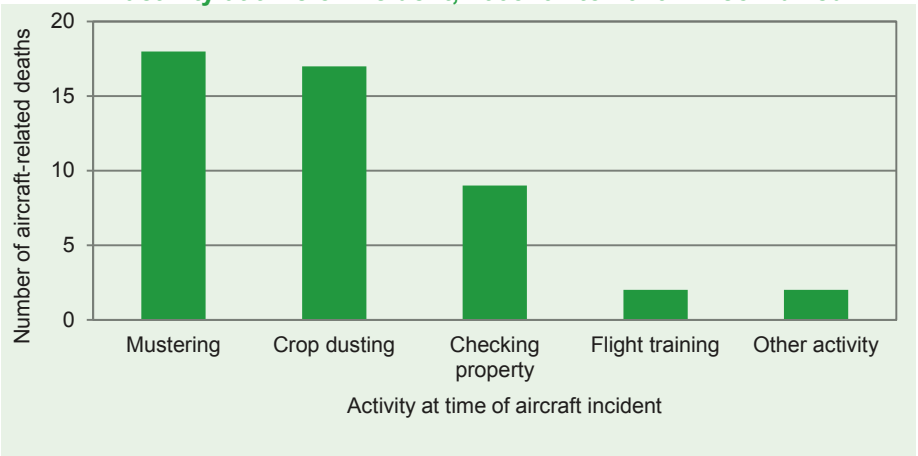
Deaths from working with aircraft

Aerial mustering and crop dusting claim four lives a year

The 48 deaths in aircraft crashes on farms represent 38% of all work-related fatalities that were the result of aircraft crashes in Australia during this period. Of these 38 were pilots, 12 were passengers and 1 was a worker undertaking maintenance on the aircraft at the time of the incident. The majority (60%) of the deceased workers were aged between 25 and 45 years.

Figure 12 shows that in 18 of the incidents the worker was involved in mustering operations, in 17 the worker was crop dusting and in a further 9 incidents workers were undertaking general checking of the property.

Figure 12 Worker fatalities involving aircraft on farms: number by activity at time of incident, 2003–04 to 2010–11 combined



Planes were involved in 25 of the incidents and the other 23 involved helicopters or other light aircraft.

In 10 of the incidents, the aircraft hit power lines while in a further 6 the aircraft hit trees. Five workers were killed when two aircraft collided.

Deaths involving light vehicles

In the eight year period considered in this report, 28 workers died in incidents involving light vehicles such as cars, utes and motorbikes. In 10 cases the deceased was in the light vehicle when a crash occurred. In 4 other cases the worker was on a motorbike when hit by a light vehicle. Two workers were traveling on the back of a utility and fell off due to rough terrain. Other incidents involved being crushed by the vehicle while undertaking repairs or while temporarily out of the vehicle, such as while opening a gate.

A typical case that involved a light vehicle was:

> *A 62 year old farmer was mustering sheep on her farm property. As she was driving her utility along a ridge the left front wheel has struck a tree stump causing the vehicle to roll a number of times down an embankment.*

Deaths involving quad bikes

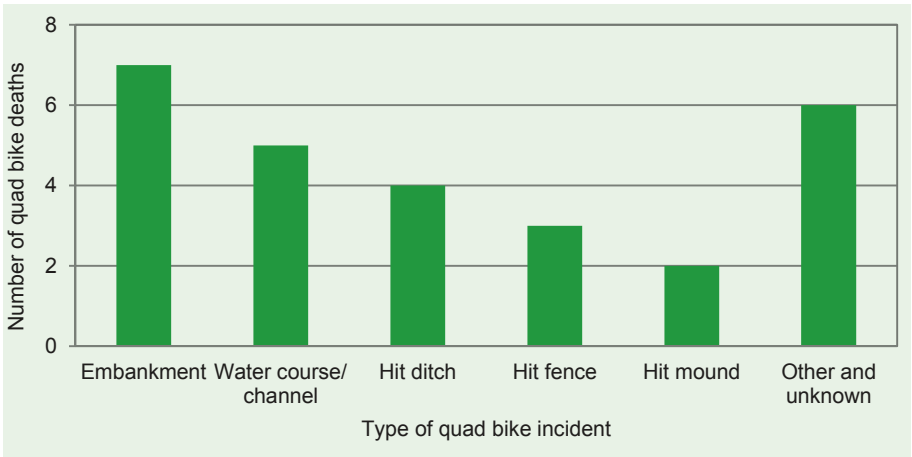
In the eight years considered in this report, 27 workers died in incidents involving quad bikes. The following analysis does not include the 5 workers who were killed while using an other types of All-Terrain Vehicles such as side by sides and those with other than four wheels.

Over two thirds of work-related quad bike fatalities were due to rollovers that pinned or crushed the worker

In 20 of the 27 quad bike incidents the worker died due to the quad bike rolling over and pinning them underneath. In the other 7 incidents the worker was thrown from the quad bike while traveling over uneven ground. The ground surface was identified as the major hazard in many of the deaths, with 7 of the rollovers occurring while traveling up or down an embankment, 5 occurring while traveling through a watercourse or irrigation channel and 4 hit a ditch. There were 3 cases where the quad bike hit a fence and 2 where it hit a mound.

The ground surface is the major hazard involved in quad bike fatalities

Figure 13 Worker fatalities involving quad bikes on farms: number by object involved, 2003–04 to 2010–11 combined



It is clear in 13 of the incidents that the worker was mustering or moving animals between paddocks and in a further 4 the worker was spraying weeds. The remaining 10 cases involved general travel around the property.

Typical quad bike fatality cases include:

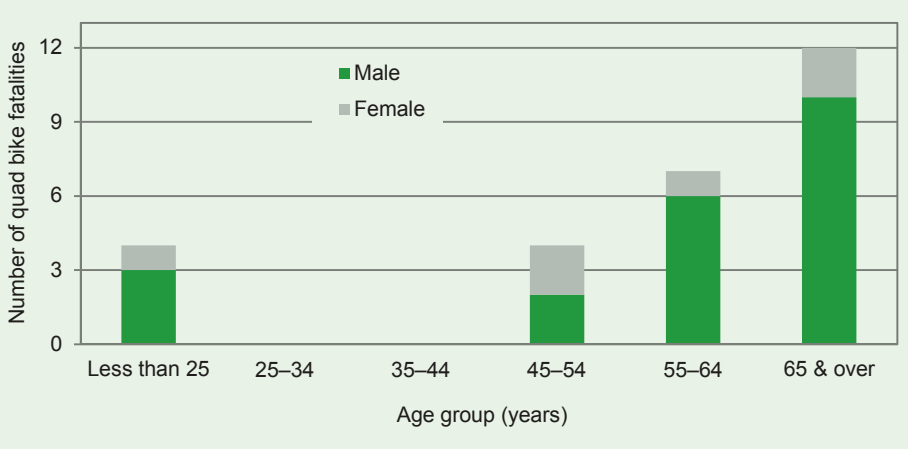
> *The deceased was spraying weeds along a track that was measured to be approximately 2.9m wide at its widest point. It appears that the deceased was reversing his quad bike and has attempted a multi-point turn and during this process the front wheels were resting on the loose graveled edge. Whilst on the edge the deceased has lost control, and the quad bike has traveled down the embankment, where the bike came to rest partially pinning the deceased underneath it.*
>
> *It appears that she was riding the bike spraying weeds when the right side wheels left the ground and the bike proceeded down the hill. Further down the hill the terrain got rougher and it appears that the bike then rolled over and trapped her.*
>
> *Whilst driving a quad bike performing mustering, the deceased contacted a barbed wire fence at speed and was thrown 7m. The deceased was not wearing a helmet and suffered severe head injuries.*

Workers aged 65 and over account for nearly half of the workers killed while using a quad bike

Figure 14 shows that deaths associated with quad bikes involved mainly older workers, with 44% of the fatalities occurring to workers aged 65 years and over. Within this age group 10 of the 12 (83%) fatalities were due to the quad bike rolling over and trapping the worker. Workers aged 55–64 years recorded 7 deaths due to quad bike use with 5 involving a rollover (71%). Interestingly, there have been no workers between the ages of 25 and 44 killed while riding a quad bike in the eight years of the series.

Of the 27 quad bike fatalities on farms, 6 involved female workers, 5 of them due to a rollover. This means that quad bikes were involved in one in five fatalities of female workers on farms.

Figure 14 Worker fatalities involving quad bikes on farms: Number by age group and sex, 2003–04 to 2010–11 combined



Deaths not involving vehicles

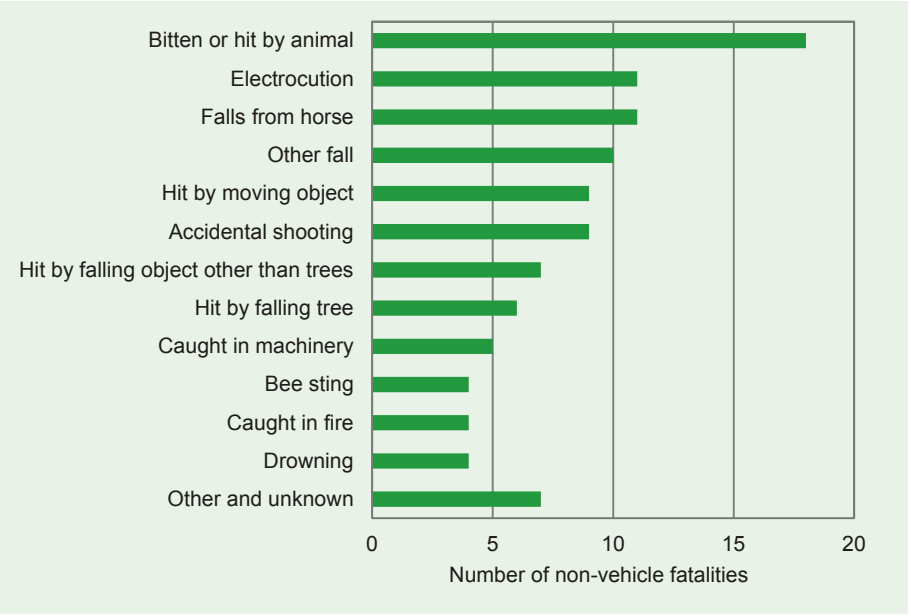
There were 105 work-related fatalities on farms that did not involve a vehicle. Figure 15 shows the most common cause of death was being *Bitten or hit by an animal* with 11 of the 18 fatalities in this category involving cows. Some examples include:

Animals such as cows and horses cause many deaths on farms

The deceased went to feed cattle and when she has thrown the feed into the trough the cattle have come running up. One cow was heavily in calf and was particularly aggressive at feed times. This cow has knocked the deceased to the ground and trampled her.

The deceased was loading cattle from a yard into a cattle loading ramp. As a steer was going up the ramp it has fallen. The deceased has run forward slightly to attempt to shut the gate. Almost simultaneously the steer has hit the gate pushing it backwards into the deceased's chest. It is believed that the steer has then jumped on the deceased as he lay prone on the ground.

Figure 15 Worker fatalities not involving vehicles on farms: Number by how incident occurred, 2003–04 to 2010–11 combined



Another common cause of death on farms was *Fall from horse* with 11 fatalities in the eight years of the study. Of these, 5 occurred while mustering and 2 while training horses.

There were also 11 deaths due to *Electrocution* with 7 of the deaths due to contacting overhead power lines. Three of the deaths occurred while using boom spray equipment and another 3 while installing irrigation pipes. The following cases are typical of deaths due to electrocution:

The deceased was transferring chemicals from a vehicle to a self propelled boom spray unit when one of the booms made contact with an overhead power line resulting in his electrocution.

The deceased has picked up a length of irrigation piping approximately 7m in length and moved it into an upright position

to clear debris from inside it. This resulted in the pipe contacting with high voltage power lines and he was electrocuted.

Falls other than from horses claimed 10 lives. Six of these workers were aged 65 years or older. While 2 of the fatalities involved falls from silos, the others were all different locations including falls from an elevated work platform, a ladder, a tree and a house.

The attempt to remove vermin from around properties or the need to destroy farm animals resulted in 9 shootings. Some cases include:

The deceased removed his rifle from his cupboard and loaded one bullet into the single shot rifle and then got onto his motor bike and somehow in the process of getting onto his bike or starting his bike the firearm has discharged with the projectile striking him under his chin resulting in a fatal injury.

The deceased and his son were spotlighting for vermin at his farm when his four-wheel-drive vehicle hit a bump and a shotgun held by son in the back of the ute fired.

The deceased was assigned to shoot a rogue bull. The deceased left the area on the quad bike with a 243 bolt action rifle sitting across his thighs. It is believed the deceased has hit a log, causing the quad bike to flip and land on his legs. During the incident it appears the firearm discharged with the projectile striking the deceased in the face causing death.

Being hit by falling trees claimed 6 lives while a further 7 workers were killed when hit by other falling objects, 2 of which were collapsing silos.

Deaths by state/territory

Half of all work-related farm deaths occurred in New South Wales or Queensland

Just over half (54%) of the work-related deaths that occurred on farms occurred in New South Wales and Queensland. This is slightly higher than the proportion of Agricultural workers these states employ (51%) and about the same proportion of Agriculture and fishing support services sector workers (55%). This suggests that if the number of workers on farms could be derived then these states would record a fatality rate similar to the national rate.

Table 5 shows that the patterns of fatalities by mechanism of injury were broadly similar across the states. New South Wales recorded one of the highest proportions due to *Vehicle incident* (49%) but lower proportions for most of the other mechanisms of injury. For example, 1 worker was killed due to *Contact with electricity* in New South Wales compared with 7 in Queensland and 6 in Victoria.

Victoria recorded one of the lowest proportions of workers killed for *Vehicle incident* (34%) but one of the highest for *Being hit by moving objects* (19% - with 12 of the 15 fatalities due to this cause involving a vehicle) and for *Contact with electricity* (8%).

The pattern in Western Australia was the most dissimilar to the national pattern with 60% due to *Vehicle incident* compared with 43% nationally and 9% for *Being hit by moving objects* compared with 15% nationally. Western Australia also had the highest proportion of

workers killed by *Being hit by falling objects* (14%) and the lowest for *Trapped by machinery or equipment* (6%).

Table 5: Worker fatalities: number by mechanism of incident and state/territory of death, 2003–04 to 2010–11 combined

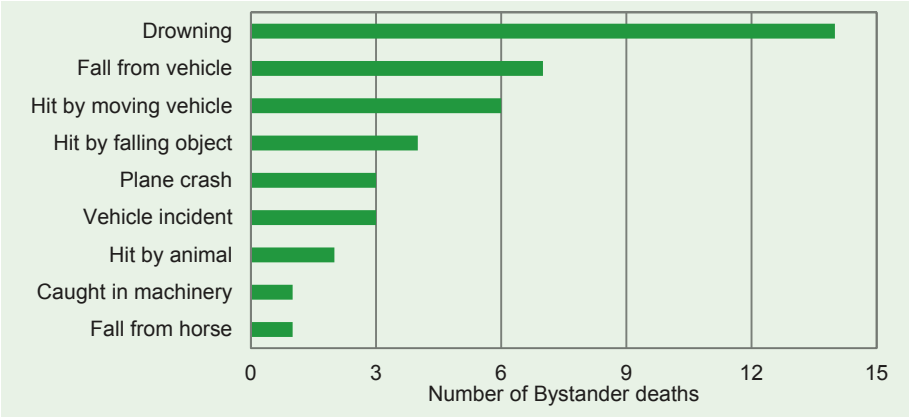
Mechanism of injury	NSW	Qld	Vic	WA	SA	Tas	NT	Total
				Number of fatalities				
Vehicle incident	48	40	26	21	4	9	6	154
Being hit by moving objects	14	11	15	3	6	2	1	52
Trapped by machinery or equipment	9	11	9	2	5	2	1	39
Being hit by falling objects	6	7	6	5	2	1	0	27
Falls	6	6	7	3	3	0	1	27
Hit or bitten by animal	4	7	4	1	1	1	0	18
Contact with electricity	1	7	6	0	1	2	0	17
Other mechanisms	9	7	4	0	2	0	0	22
Total	**97**	**96**	**77**	**35**	**24**	**17**	**9**	**356**
				Percentage of state/territory				
Vehicle incident	49%	42%	34%	60%	17%	53%	67%	43%
Being hit by moving objects	14%	11%	19%	9%	25%	12%	np	15%
Trapped by machinery or equipment	9%	11%	12%	6%	21%	12%	np	11%
Being hit by falling objects	6%	7%	8%	14%	8%	6%	0	8%
Falls	6%	6%	9%	9%	13%	0%	np	8%
Hit or bitten by animal	4%	7%	5%	3%	4%	6%	0	5%
Contact with electricity	1%	7%	8%	0%	4%	12%	0	5%
Other mechanisms	9%	7%	5%	0%	8%	0%	0	6%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Bystander fatalities on farms

Five visitors/family members are killed each year on farms, four of them are children under the age of 10

Over the eight year period considered in this report, 41 non-working people were killed on farms. Of these 35 were children under the age of 10. Figure 16 shows that *Drowning* accounted for the highest number of the deaths. Of the 13 deaths from drowning, 10 involved children who drowned in farm dams. The other drownings were also children: 1 drowned in an irrigation channel, 1 in a creek and 1 in a cattle dip.

Figure 16 Bystander fatalities involving farms: Number by age group, 2003–04 to 2010–11 combined



Vehicles were involved in half (22) of the incidents. There were 7 Bystanders who died after falling from a vehicle (4 of which were tractors), 6 were hit by a moving vehicle, 3 died in plane crashes and 3 died in other vehicle crashes. Some of the fatalities include:

A two year old boy and his family were visiting friends on an orchard with an unfenced dam near the house. The child has wandered off and drowned in the dam.

A two year old boy was placed in the front bucket of a tractor while the family was picking up rocks from the paddock. The child has fallen or attempted to get out of the bucket and went under the tractor with the rear left wheel going over the full length of his body causing him to be crushed.

A one year old child and his mother were visiting his grandmother. His mother took him in a stroller to a stable yard. His mother left him in the stroller while she opened a gate to let three large ponies out of a small holding yard into an open paddock. The child got out of the stroller and walked into the holding yard behind his mother and was knocked over by one of the ponies that then trod on him.

A father stopped his tractor and switched off the engine but left the two children on board. A short time later the tractor was observed to move forwards a short distance before stopping. It is believed that the deceased child was standing on the running board of the tractor when it commenced to move forward and she has come into contact with the tyre causing her to be drawn under the wheel.

Queensland was the location for 14 of bystander fatalities. All of these bystander fatalities were children, with 7 drowning and 6 either falling from a vehicle or being hit by one. New South Wales and Victoria accounted for 8 deaths each. Half of the fatalities in New South Wales involved vehicles while half of the fatalities in Victoria involved drownings. Western Australia recorded 6 bystander fatalities with 4 the result of incidents involving vehicles and 2 from drowning.

Work-related injuries

47 Agriculture workers were injured each day but compensation only paid for 12

The Work-related Injury Survey (WRIS) produced by the ABS estimated that in 2009–10, 17 400 workers in the Agriculture sector had incurred a work-related injury or illness in the previous 12 months. This amounts to over 47 injuries per day in the Agriculture sector. While this estimate is affected by the ability of the worker to recall their work-related injury and illnesses it equates to an incidence rate of 56.4 injuries per 1000 workers. This rate of injuries was slightly lower than the rate for workers in all industries (57.9). The survey also showed there was little difference in the injury rates between employees (55.5) and self-employed workers (57.2) working in the Agriculture sector.

The survey data showed that 65% of injured employees took no time off work following their injury but also that 23% of those employees who required five or more days off work following their work-related injury did not seek workers' compensation.

The workers' compensation claims data shows a fall in the number of claims in the Agriculture sector in the last few years. The number of claims fell 21% from 5750 in 2008–09 to 4520 in 2009–10. The preliminary data for 2010–11 show 4155 claims which is still expected to be a fall on the previous year when all claims are processed.

The following chapter presents an analysis of workers' compensation data. These data provide good information on how injuries are incurred in the Agriculture sector but readers need to keep in mind that these data understate the full extent of injuries in this sector because only half of the workers in this sector are eligible for workers' compensation and many of those who are eligible did not put in a claim for their injury. Data in this chapter are presented for the total of the three claim periods of 2008–09, 2009–10 and 2010–11. This has been done to reduce the volatility that can be present in small numbers. In addition the data for 2010–11 while the latest available are preliminary and expected to rise.

The workers' compensation data include claims for injuries and illnesses incurred at work but exclude claims for incidents involving a journey to or from work.

Worker' compensation claims by sex

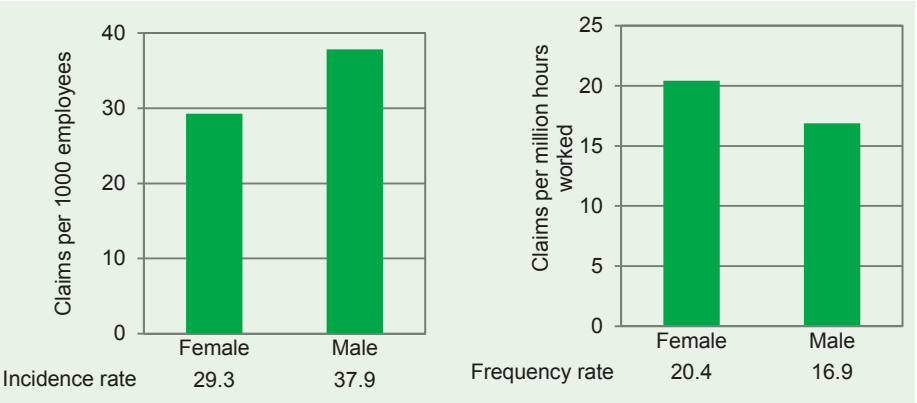
Over the three years 2008–09, 2009–10 and 2010–11, three-quarters (77%) of claims were lodged by male employees in the Agriculture sector. This is slightly higher than the proportion of employees who were male (72%) and slightly lower than the proportion of hours worked by male employees (80%). This higher proportion of hours worked by males is an indication of the longer average hours of work typical of this group with male Agriculture employees working 43 hours per week on average compared with 28 for females.

Figure 17 shows that male employees in the Agriculture sector recorded an incidence rate of injury over this three year period of 37.9 claims per 1000 employees, which was 29% higher than the incidence rate of injury for female Agriculture employees. However,

Female Agriculture workers had a higher rate of injury per hour worked

when hours are controlled, the lower average hours of work by females resulted in a higher frequency rate of injury for female Agriculture workers than male Agriculture workers. The rate for females of 20.4 injuries per million hours worked was 21% higher than the rate for males of 16.9.

Figure 17: Agriculture sector workers' compensation claims: incidence and frequency rates by sex, 2008–09, 2009–10 and 2010–11 combined



Time lost from work

40% of claims involved less than one week off work

A typical claim from an employee in the Agriculture sector involved one and a half weeks off work, which is three times the amount of time taken by all employees. Table 6 shows that 40% of claims involved less than one week off work. This is substantially lower than the proportion of claims for less than one week off work made by employees in all industries (53%).

In contrast a greater proportion of Agriculture sector claims involved 1–5 weeks off work than observed for all Australian employees (31% and 25% respectively). When considered together these data show that the proportion of claims that involved less than six weeks off work were similar for Agriculture employees and all employees (71% for Agriculture and 78% for all employees).

Table 6: All workers' compensation claims from employees: Percentage by time off work, 2008–09, 2009–10 and 2010–11 combined

Duration of absence	Agriculture	All industries
Up to one week	40%	53%
1 to 5 weeks	31%	25%
6 to 11 weeks	11%	7%
12 to 25 weeks	9%	5%
26 to 51 weeks	5%	3%
52 weeks and over	4%	4%
Total	**100%**	**100%**

Agriculture workers require longer periods off work

Overall Agriculture employees have claims requiring longer periods off work than for employees across all industries. This could mean that more serious injuries occur on farms than generally across all industries or that Agriculture workers only lodge claims for compensation when their injury is severe.

How injuries occurred

One-quarter of compensation claims were due to the straining of muscles or tendons

Table 7 shows how the employees who lodged a workers' compensation claim were injured at work and how long these workers required off work. One-quarter of claims involved *Body stressing* which includes claims for injuries or disorders as a result from stress placed on muscles, tendons, ligaments and bones. Many of these injuries were due to handling or lifting objects. These claims were spread fairly evenly across the duration of absence groups. Of the *Body stressing* claims, 29% were due to handling non-powered tools and equipment, 15% from working with animals and 11% working with mobile plant and transport.

Table 7: Agriculture sector workers' compensation claims: number by mechanism of incident and duration of absence, 2008–09, 2009–10 and 2010-11 combined

Mechanism of incident	Duration of absence			Total
	Less than 1 week	1–5 weeks	6 weeks or more	
	Number of claims			
Body stressing	1 325	1 105	1 195	3 620
Being hit by moving objects other than an animal	1 240	780	575	2 595
Falls on the same level	545	505	500	1 550
Falls from a height	405	485	565	1 455
Being hit by an animal	565	410	390	1 360
Vehicle incident	255	260	475	995
Hitting moving objects	390	260	100	750
Hitting stationary objects	465	235	100	800
Chemicals and other substances	235	110	20	365
Heat, radiation and electricity	95	65	25	180
Sound and pressure	10	125	5	140
Biological factors	25	50	25	100
Mental stress	15	15	50	75
Other and unspecified mechanisms of injury	175	125	130	430
Total	**5 750**	**4 520**	**4 155**	**14 425**
	Percentage			
Body stressing	37%	30%	33%	100%
Being hit by moving objects other than an animal	48%	30%	22%	100%
Falls not from height	35%	33%	32%	100%
Falls from a height	28%	33%	39%	100%
Being hit by an animal	41%	30%	29%	100%
Vehicle incident	26%	26%	48%	100%
Hitting moving objects	52%	34%	13%	100%
Hitting stationary objects	58%	29%	13%	100%
Chemicals and other substances	65%	30%	6%	100%
Heat, radiation and electricity	52%	35%	14%	100%
Sound and pressure	8%	88%	4%	100%
Biological factors	26%	50%	24%	100%
Mental stress	19%	17%	64%	100%
Other and unspecified mechanisms of injury	41%	29%	31%	100%
Total	**40%**	**31%**	**29%**	**100%**

Being hit by an animal accounted for 9% of claims however 41% of these claims required less than one week off work. *Being hit by moving objects other than an animal* accounted for 18% of claims. Nearly half of the claims (48%) for *Being hit by an animal* involved less than one week off work, indicating that the injuries caused by this mechanism are less severe than *Body stressing* injuries.

One in five injuries were the result of a fall

Falls accounted for 21% of claims. There were almost an equal number of claims due to *Falls from height* as due to *Falls on the same level*. The injuries from *Falls from height* resulted in slightly more severe injuries with 39% of injured employees requiring 6 or more weeks off work compared with 32% for *Falls on the same level*. The claims due to falls were mainly due to the ground surfaces being hazardous (41%) and 18% were due to falls from mobile plant and transport.

There were only slight differences in the profiles of claims requiring different periods of time lost. Claims involving 6 or more weeks off work were a little more likely to involve *Body stressing* than claims for absences of shorter duration. In contrast claims resulting from *Being hit by moving objects other than an animal* accounted for a greater proportion of the less than one week absence claims than the other duration of absence groups.

Overall, 22% of claims were due to working with animals, 19% from working with mobile plant and transport and 18% from working with non-powered tools and equipment.

Similar causes of injury for both male and female Agriculture employees

Table 8 shows the proportion of workers' compensation claims by sex and mechanism of incident. These data show that male and female employees incurred injuries in similar ways. *Body stressing* was the main mechanism of incident for both male and female employees with this mechanism accounting for 28% of claims from females and 24% of claims from males.

Males had a slightly higher proportion of claims due to *Being hit by moving objects other than an animal* (19% for males compared with 14% for females), while females recorded a higher proportion for *Being hit by an animal* (12% for females and 9% for males).

The other notable difference is that 8% of claims from males were due to Vehicle incident with females having half this proportion (4%).

Table 8: Agriculture sector workers' compensation claims: number by mechanism of incident and duration of absence, 2008–09, 2009–10 and 2010–11 combined

	Proportion of claims		
Mechanism of incident	**Female**	**Male**	**Total**
Body stressing	28%	24%	25%
Being hit by moving objects other than an animal	14%	19%	18%
Falls not from height	13%	10%	11%
Falls from a height	11%	10%	10%
Being hit by an animal	12%	9%	9%
Vehicle incident	4%	8%	7%
Hitting moving objects	4%	6%	5%
Hitting stationary objects	5%	6%	6%
Chemicals and other substances	3%	2%	3%
Other mechanisms of injury	7%	6%	6%
Total	**100%**	**100%**	**100%**

Object or substance inflicting injury

The agency of injury or illness describes the object or substance that was the direct cause of the most serious injury. Within this classification are nine broad groups with four of them accounting for nearly two thirds of claims (73%) in the Agriculture sector.

The physical environment accounted for one in five claims

Table 9 shows that 20% of claims were due to *Environmental agencies*, which includes the physical environment in which the worker operates. Not unexpectedly, the majority of these claims involved *Outdoor environment* with the main items listed being *Vegetation* and *Fencing* each accounting for 3% of claims.

A similar proportion of claims (19%) were due to *Animal, human & biological agencies* with *Horses, donkeys, mules* accounting for slightly more claims than *Cows, steers, cattle, bulls, buffalo* though both represented 6% of claims.

The third most common agency of injury was *Non-powered handtools, appliances & equipment* accounting for 18% of claims. Within this agency group, *Fastening, packing & packaging equipment* accounted for the greatest proportion of claims (6% of all claims).

The fourth of the agency groups that is most relevant to claims in the Agriculture sector was *Mobile plant & transport* accounting for 16% of claims. *Motorcycles & sidecars, scooters, trail bikes* accounted for more than twice the claims (5%) due to incidents involving *Trucks, semi-trailers, lorries* (2%) and *Cars, station wagons, vans, utilities* (2%). While tractors were prominent with fatalities, they accounted for just 2% of workers' compensation claims.

Females had more claims involving horses while males had more claims involving transport

The main difference between claims lodged by males and females were for injuries due to *Animal, human & biological agencies* and particularly for claims involving *Horses, donkeys, mules* where the proportion for females (12%) was three times the proportion for males (4%). Males also had 17% of claims attributed to *Mobile plant & transport* compared with 10% for females. Males recorded higher proportions of injuries resulting from all types of transport and plant than females.

Part of the body most affected

Table 10 shows that the body part most affected by a work-related injury was *Hands, fingers & thumbs* which accounted for 17% of all workers' compensation claims made by Agriculture employees. This was closely followed by injuries to the *Back* which accounted for 15% of claims.

The pattern of claims for males and females were remarkably similar. Injuries to *Upper limb* accounted for 39% of claims from female Agriculture workers and 36% for males. Within this category females had a greater proportion of claims that involved the *Wrist* (7% for females and 4% for males) while males had a greater proportion that involved *Hands, fingers & thumbs* (17% for males and 15% for females).

Table 9: Agriculture sector workers' compensation claims: number by agency of injury or illness, 2008–09, 2009–10 and 2010–11 combined

Agency of injury or illness	Percentage			Number of claims
	Female	Male	Total	
Environmental agencies	21%	19%	20%	2 815
Outdoor environment	17%	17%	17%	2 400
Vegetation	4%	3%	3%	495
Fencing	2%	3%	3%	360
Holes in the ground	1%	1%	1%	155
Indoor environment	4%	2%	3%	405
Animal, human & biological agencies	25%	18%	19%	2 810
Live four-legged animals	20%	15%	16%	2 310
Horses, donkeys, mules	12%	4%	6%	870
Cows, steers, cattle, bulls, buffalo	5%	6%	6%	820
Sheep	1%	3%	2%	330
Pigs	1%	2%	2%	230
Non-powered handtools, appliances & equipment	18%	18%	18%	2 590
Fastening, packing & packaging equipment	6%	6%	6%	805
Crates, cartons, boxes, cases, drums, kegs, barrels, cans	4%	2%	3%	370
Bags, bundles & bales	0%	1%	1%	105
Wire, wire rope, metal strapping	1%	1%	1%	110
Handtools, non-powered, edged	3%	4%	4%	605
Knives & cutlery	2%	3%	2%	345
Ladders, mobile ramps & stairways, & scaffolding	2%	1%	2%	230
Ladders	2%	1%	1%	200
Mobile plant & transport	10%	17%	16%	2 245
Road transport	6%	9%	8%	1 225
Motorcycles & sidecars, scooters, trail bikes	3%	5%	5%	695
Trucks, semi-trailers, lorries	1%	2%	2%	260
Cars, station wagons, vans, utilities	1%	2%	2%	220
Other mobile plant	4%	5%	5%	705
Tractors, agricultural or otherwise	1%	3%	2%	340
Trolleys, handcarts	2%	1%	1%	160
Trailers, caravans	0%	1%	1%	110
Self-propelled plant	0%	1%	1%	175
Materials & substances	9%	11%	11%	1 520
Ferrous & non-ferrous metal	2%	3%	3%	390
Fragments	0%	1%	1%	135
Food	2%	0%	1%	125
Sawn or dressed timber	0%	1%	1%	100
Machinery & mainly fixed plant	4%	5%	5%	690
Sheep shearing plant	0%	1%	1%	95
Forklift trucks	0%	1%	1%	80
Powered equipment, tools &appliances	2%	3%	2%	345
Chemicals & chemical products	1%	1%	1%	215
Other and unspecified agencies	10%	8%	8%	1 190
Total	**100%**	**100%**	**100%**	**14 425**

Note: Only the major sub-categories are shown so the sub-categories do not necessarily sum to the percentage shown at the broad level.

Table 10: Agriculture sector workers' compensation claims: number by bodily location of injury or illness by sex, 2008–09, 2009–10 and 2010–11 combined

	Percentage of claims		
Bodily location	**Female**	**Male**	**Total**
Upper limbs	39%	36%	37%
Hand, fingers & thumb	15%	17%	17%
Shoulder	8%	8%	8%
Wrist	7%	4%	5%
Forearm	3%	3%	3%
Lower limbs	24%	26%	25%
Knee	9%	9%	9%
Ankle	6%	5%	6%
Foot & toes	4%	4%	4%
Lower leg	2%	4%	3%
Trunk	19%	21%	21%
Back	15%	15%	15%
Chest	2%	3%	3%
Head	9%	10%	10%
Eye	2%	4%	4%
Neck	2%	1%	1%
Other & unspecified locations	8%	6%	6%
Total	**100%**	**100%**	**100%**

Note: Only the major sub-categories are shown so the sub-categories do not necessarily sum to the percentage shown at the broad level.

Workers' compensation claims by sector

70% of workers' compensation claims were lodged by workers in grain, sheep and beef cattle farming

Over the three years 2008–09, 2009–10 and 2010–11, 14 400 claims for workers' compensation were accepted from employees working in the Agriculture sector. This number of claims equates to an incidence rate of 35.5 claims per 1000 employees which is 27% higher than the rate for all industries (27.9). This means the workers' compensation data show employees in the Agriculture sector have a much higher injury rate than employees nationally.

This is different to the ABS WRIS data which show similar injury rates between Agriculture workers and all workers. The survey data is not robust enough to determine if Agriculture employees have a higher propensity to claim workers' compensation than other workers. It could also be that while the survey estimates are within acceptable standard error bands the true results could still lie up to 25% of either side of the rates shown at the beginning of this chapter.

Table 11 shows that over the three years from 2008–09 to 2010–11, 70% of claims were lodged by employees in two sectors: Grain, sheep and beef cattle farming[3] and Horticulture and fruit growing. These sectors accounted for 75% of Agriculture employees in this period. This resulted in these two sectors recording incidence rates slightly below the rate for the whole of the Agriculture sector.

3 The workers' compensation data are compiled using the 1993 version of the Australian and New Zealand Standard Industrial Classification whereas the other data in this report are compiled using the 2006 version.

Table 11: Agriculture sector workers' compensation claims: proportion and incidence rate by sector and year

Industry sector	2008–09	2009–10	2010–11p	Total
	Number of claims			
Grain, sheep and beef cattle farming	33%	36%	37%	35%
Horticulture and fruit growing	37%	34%	35%	35%
Other livestock farming	11%	12%	11%	12%
Dairy cattle farming	6%	6%	6%	6%
Other crop growing	7%	6%	6%	6%
Poultry farming	5%	5%	6%	5%
Total Agriculture	100%	100%	100%	100%
	Incidence rate (claims per 1000 employees)			
Grain, sheep and beef cattle farming	33.9	33.3	36.6	34.6
Horticulture and fruit growing	39.0	28.9	30.4	32.6
Other livestock farming	118.3	99.8	91.7	102.5
Dairy cattle farming	39.3	30.7	31.2	33.6
Other crop growing	50.2	38.9	36.0	41.6
Poultry farming	28.3	18.1	16.5	20.0
Total Agriculture	39.9	33.0	33.9	35.5

It should be noted that the workers' compensation data are compiled using an older version of the industry classification. Therefore the names in Table 10 are different to those shown in the first two chapters of this report.

In Table 11 the sector called Grain, sheep and beef cattle farming comprises the same workers as the sector called Sheep, beef cattle and grain farming used in the first two chapters of this report. The Horticulture and fruit growing sector used in the table below has been split in the new industry classification into Nursery & floriculture production, Mushroom & vegetable growing and Fruit & tree nut growing.

Other livestock farming has the highest rate of injury

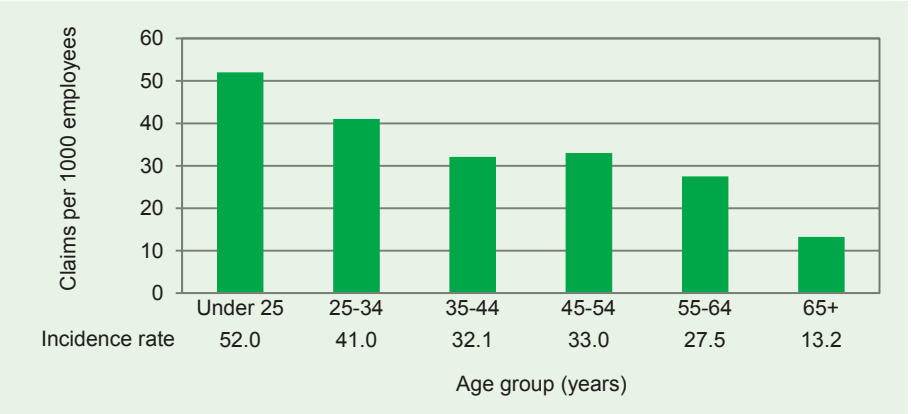
Within the Agriculture sector the highest incidence rate of injury (102.5 claims per 1000 employees) was recorded by Other livestock farming. This rate was nearly three times the rate for the whole of the Agriculture sector. The Other livestock farming sector accounted for 4% of Agriculture employees and includes the farming of animals such as pigs, horses, dogs, cats and goats. The Poultry farming sector recorded the lowest incidence rate of 20 claims per 1000 employees.

Workers' compensation claims by age group

Young workers had the highest claim rates

Figure 18 shows that the incidence rates of worker' compensation generally fell with increasing employee age. Employees aged under 25 years recorded 52.0 claims per 1000 employees which was four times the rate for employees aged 65 years and over (13.2). However, as was seen in Figure 2 nearly all workers in the 65 years and over age group were self-employed and hence not eligible for workers' compensation. Those that were employees at this age were more likely to be managers and working in a safer environment. Therefore it is possible that the workers' compensation data underestimates the rates of injury in the 65 years and over age group.

Figure 18: Agriculture sector workers' compensation claims: Incidence rates by age group, 2008–09, 2009–10 and 2010–11 combined

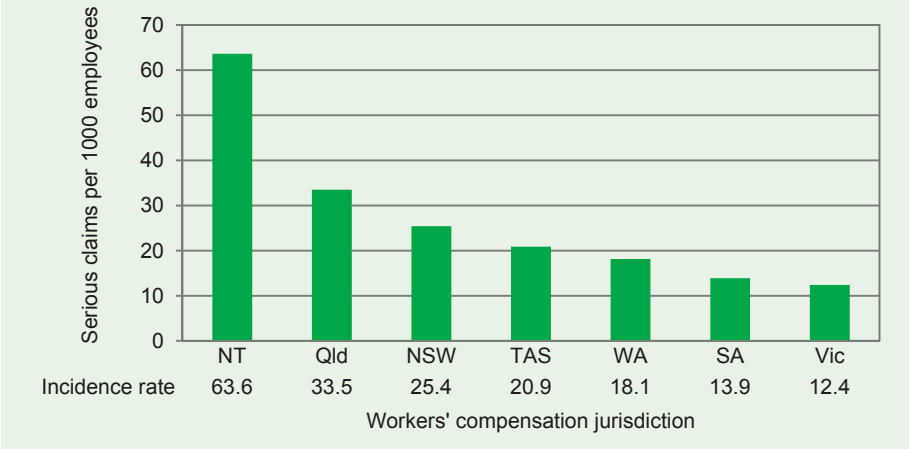


Serious claims by state/territory

A limitation of the national dataset of workers' compensation claims is that it may not contain reliable information on claims that were fully paid for by the employer. Therefore only data on serious claims are usually published. Serious claims are those that involved a fatality, a permanent incapacity or a temporary incapacity of one or more weeks. The data on serious claims are of better quality because for the most part the one week duration of time lost is beyond the excess period of the compensation schemes in each jurisdiction.

Figure 19 shows that the Northern Territory recorded the highest incidence rate of serious claims by employees in the Agriculture industry with 63.6 serious claims per 1000 employees. This was nearly double the rate of the next highest state (Queensland with 33.5) and five times the lowest rate (Victoria with 12.4). While the Northern Territory accounted for just 1% of employees, it accounted for 4% of serious claims. New South Wales and Queensland accounted for 30% of serious claims each but because Queensland has fewer employees in the Agriculture sector it has a higher incidence rate.

Figure 19: Agriculture sector serious workers' compensation claims: Incidence rates by state/territory, 2008–09, 2009–10 and 2010–11 combined



Hospitalisations due to work-related injury

At least 6% of the workers hospitalised had been injured on a farm

The Australian Institute of Health & Welfare (AIHW) maintains a database of hospitalisations from which cases that involved work-related activity can be extracted. This database shows that over the three-year period from July 2006 to June 2009 approximately 73 400 hospitalisations occurred across Australia where the patient was aged 15 years or over and their activity when injured was reported as 'working for income'. However, because of the large number of hospitalisations for injury where activity when injured was recorded as 'Unspecified activity', the true number of work-related hospitalisations is likely to be higher than this figure.

Of the 73 400 hospitalisations, 4400 (6%) had the place of occurrence of the incident reported as a farm. This is twice the proportion the Agriculture sector represents of the national workforce (3%) though it should be mentioned that a worker may have been hospitalised more than once in the three-year period.

The number of farm hospitalisations should also be considered as understated since for 45% of the work-related injury hospitalisations the place of occurrence was not reported. This chapter provides a profile of the hospital admissions where the activity at the time of the injury was reported as 'working for income' and the place of occurrence was reported as a farm. These will be referred to as farm hospitalisations in this report.

Causes of hospitalisation

Table 11 shows the broad causes of injury that resulted in a hospitalisation of a farm worker and the more common detailed underlying categories. At the broad level 38% of farm hospitalisations were the result of *Exposure to inanimate mechanical forces*: a category covering a wide variety of causes, the most common of which were *Contact with agricultural machinery* and *Caught, crushed, jammed or pinched in or between objects* (9% and 6% of farm hospitalisations respectively).

Transport accidents accounted for one-quarter of farm hospitalisations and was the second most common broad cause of injury. At a more detailed level the table shows 9% of farm hospitalisations involved a *Motorcycle rider*.

Female farm workers were more likely to be hospitalised due to an incident with a horse

A hazard particular to farms is the handling of livestock. Episodes related to the handling livestock are recorded under the category *Exposure to animate mechanical forces*. Over the period July 2006 to June 2009 this cause of injury was responsible for 16% of farm hospitalisations. The most common underlying category was being *Bitten or struck by cattle*: reported in for 9% of farm hospitalisations.

Males accounted for most of the hospitalisations (85%) for a work-related injury that occurred on a farm. Comparison of the hospitalisation proportions by sex at the broad level of cause of injury shows that a larger proportion of hospitalisations for females than

males were due to *Exposure to animate mechanical forces* (21% and 15% respectively), *Transport accidents* (29% and 24%) and *Falls* (13% and 8%). The underlying transport categories highlight that 13% of the farm hospitalisations for females involved *Animal-rider or occupant of animal-drawn vehicle.* In nearly all cases this involved falling from a horse.

Table 11 Farm work-related hospitalisations July 2006 to June 2009: percentage by cause of injury and sex

Cause of injury	Males	Females	Total
Exposure to inanimate mechanical forces	40%	25%	38%
Contact with agricultural machinery	*10%*	*4%*	*9%*
Caught, crushed, jammed or pinched in or between other objects	*7%*	*6%*	*6%*
Struck by thrown, projected or falling object	*4%*	*4%*	*4%*
Contact with knife, sword or dagger	*4%*	*2%*	*4%*
Contact with other specified machinery	*4%*	*1%*	*3%*
Striking against or struck by other objects	*3%*	*2%*	*2%*
Contact with non-powered hand tool	*2%*	*1%*	*2%*
Foreign body or object entering through skin	*2%*	*2%*	*2%*
Transport accidents	*24%*	*29%*	*25%*
Motorcycle rider	*9%*	*7%*	*9%*
Animal-rider or occupant of animal-drawn vehicle	*5%*	*13%*	*6%*
Occupant of special vehicle mainly used in agriculture	4%	3%	4%
Occupant of special all-terrain or other motor vehicle designed primarily for off-road use	*3%*	*3%*	*3%*
Exposure to animate mechanical forces	*15%*	*21%*	*16%*
Bitten or struck by cattle	*9%*	*10%*	*9%*
Bitten or struck by horse	*2%*	*6%*	*2%*
Bitten or struck by sheep	*1%*	*2%*	*1%*
Falls	8%	13%	9%
Fall on same level from slipping, tripping & stumbling	*2%*	*4%*	*2%*
Other fall from one level to another	*1%*	*1%*	*1%*
Fall on & from ladder	*1%*	*2%*	*1%*
Overexertion, travel & privation	3%	3%	3%
Contact with venomous animals & plants	*2%*	*1%*	*2%*
Accidental poisoning by & exposure to noxious substances	*2%*	*1%*	*2%*
Other causes of injury	*6%*	*6%*	*6%*
Total	**100%**	**100%**	**100%**
Total number of hospitalisations	**3 780**	**650**	**4 420**

Note: Only the major sub-categories are shown so the sub-categories do not necessarily sum to the percentage shown at the broad level.

Figure 20 shows the most common detailed causes of injury among farm workers hospitalised for a work-related injury by sex. These causes of injury together accounted for 54% of farm work-related hospitalisations for males and 55% for females.

Males were more likely than females to be hospitalised due to an incident with agricultural machinery or cattle

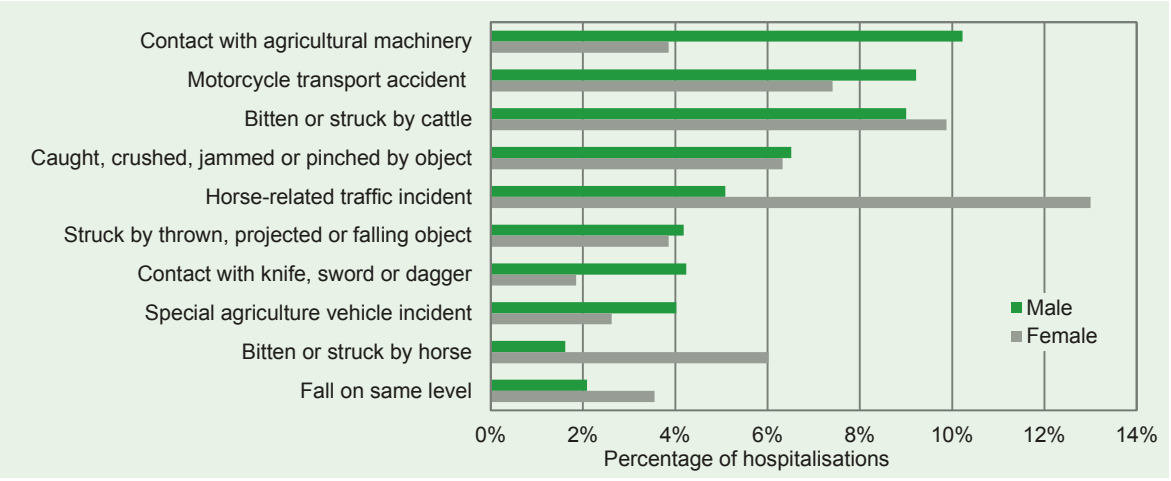
For male farm workers the most commonly specified cause of hospitalisation was *Contact with agricultural machinery* (10% of hospitalisations by males). This was followed by *Motorcycle transport accident* (9%) and *Bitten or struck by cattle* (9%).

A considerably different pattern was seen in the farm hospitalisations of females with the most common causes being *Horse-related traffic*

incident (13%) followed by *Bitten or struck by cattle* (10%) and *Bitten or struck by horse* (6%).

There were some similarities in the proportions by sex for the cause for hospitalisation. Male and female farm workers reported similar proportions for *Caught, crushed, jammed or pinched by object*, *Bitten or struck by cattle* and *Struck by thrown, projected or falling object*.

Figure 20 Farm work-related hospitalisations June 2006 to July 2009: percentage by the most common specified causes of injury* by sex



*** Cause of injury names have been simplified for ease of understanding in this graph**

Age profile of hospitalised workers

Workers aged 65 and over accounted for 12% of farm hospitalisations compared with 3% nationally

Figure 21 shows the age profile for farm hospitalisations compared with work-related hospitalisations across all locations. These data show that farm hospitalisations had lower proportions in the younger age groups up to 55 years. After this age, farm hospitalisations recorded higher proportions, particularly for the 65 years & over age group which accounted for 12% of hospitalisations compared with just 3% for hospitalisations from all locations. This is linked to the much older age profile of farm workers.

Figure 21 Work-related hospitalisations June 2006 to July 2009: percentage by place of occurrence and age

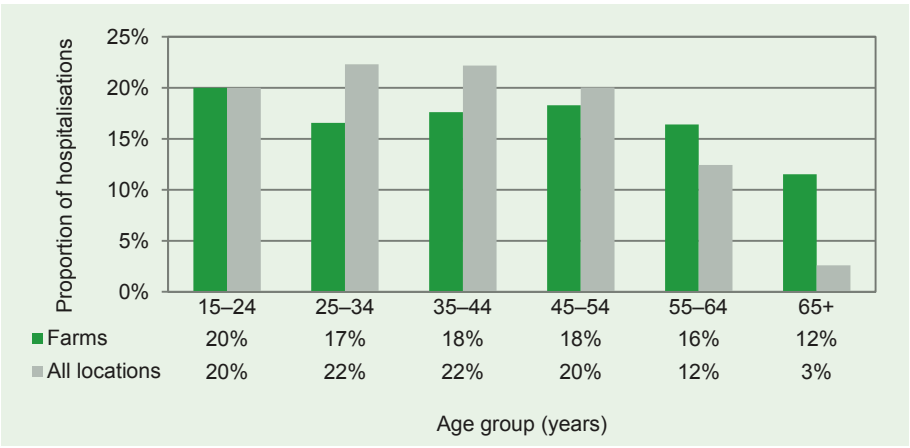


Table 12 shows that among the most common causes of injury there are some distinct age-related patterns. Of the farm workers who were hospitalised, young workers recorded higher proportions for a motorbike or horse-related incident or from coming into contact with a sharp object such as a knife. In contrast, older workers had a higher proportion from being bitten or struck by cattle.

Table 12 Farm work-related hospitalisations July 2006 to June 2009: percentage by most common causes of injury and age group

	Age group (years)					
Cause of injury	**15–24**	**25–34**	**35–44**	**45–54**	**55–64**	**65+**
Contact with agricultural machinery	6%	8%	11%	10%	11%	9%
Transport accidents - motorcycle rider	14%	12%	8%	8%	5%	5%
Bitten or struck by cattle	8%	6%	8%	10%	10%	16%
Caught, crushed, jammed or pinched in or between other objects	6%	5%	8%	7%	7%	6%
Animal-rider or occupant of animal-drawn vehicle	12%	6%	6%	5%	4%	3%
Struck by thrown, projected or falling object	2%	4%	4%	6%	4%	5%
Contact with knife, sword or dagger	6%	7%	3%	4%	2%	1%
Transport accidents - Occupant of special vehicle mainly used in agriculture	3%	4%	3%	2%	5%	6%

Type of injury resulting in hospitalisation

One-third of farm hospitalisations involved a fracture

Figure 22 shows the principal injury that resulted in hospitalisation. One-third (33%) of farm hospitalisations principally involved a *Fracture*. This was slightly higher than the proportion *Fracture* represent of all work-related hospitalisations (27%). These data also show that the proportion of farm hospitalisations for *Open wound* (18%) was similar to all Australian workers but farm workers had half the proportion of hospitalisations due to injuries to *Muscle & tendons* (6%) compared with 12% for Australian workers overall.

These data also indicate that farm workers had more hospitalisations for *Superficial* and *Intracranial* injuries than workers nationally though the percentages were small.

Figure 22 Work-related hospitalisations June 2006 to July 2009: percentage by place of occurrence and type of injury

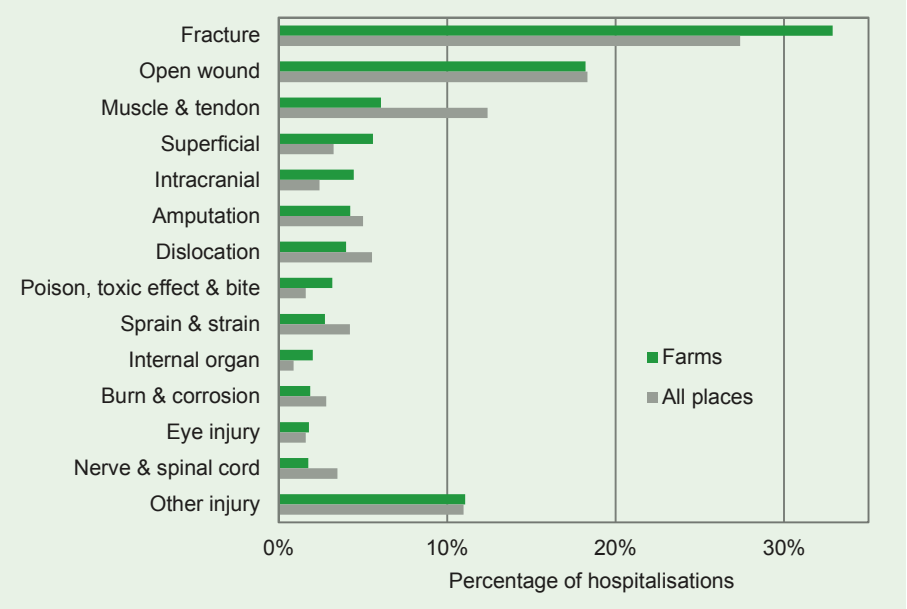


Table 13 shows that age had little impact on the type of injury that required hospitalisation. However, an exception to this is *Fracture* for which the proportions increased with age from 28% of farm hospitalisation in the 15–24 years age group to 37% of those in the 65 years and over age group.

Table 13 Farm work-related hospitalisations July 2006 to June 2009: percentage by type of injury and age group

	Age group (years)					
Type of injury	**15–24**	**25–34**	**35–44**	**45–54**	**55–64**	**65+**
Fracture	28%	32%	32%	32%	39%	37%
Open wound	19%	18%	19%	19%	15%	20%
Muscle & tendon	5%	6%	5%	7%	8%	6%
Superficial	8%	6%	4%	5%	5%	6%
Intracranial	7%	5%	2%	3%	4%	5%
Amputation	3%	4%	6%	4%	6%	4%
Dislocation	3%	5%	5%	4%	4%	3%
Poison, toxic effect & bite	3%	4%	3%	3%	3%	3%
Sprain & strain	2%	3%	2%	3%	2%	3%
Other injury	22%	19%	20%	19%	15%	13%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Bodily location of injury that resulted in hospitalisation

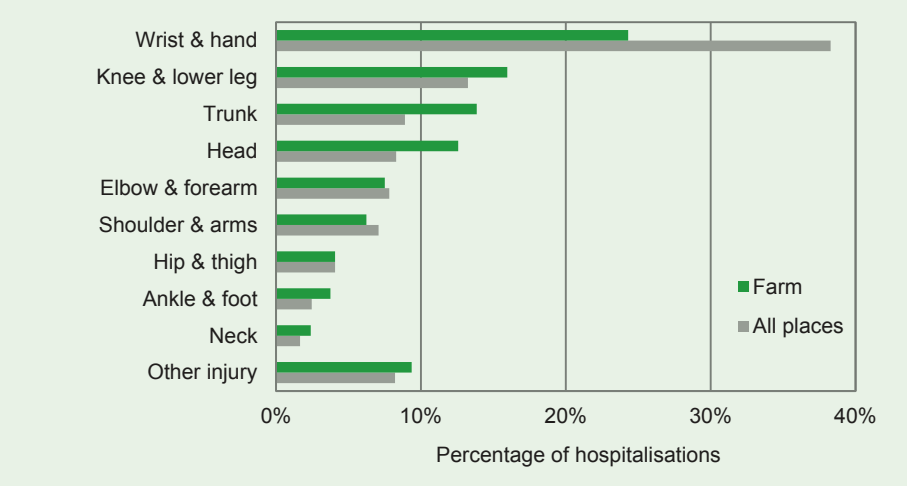
One-quarter of farm hospitalisations involved an injury to the hand or wrist

Figure 23 shows that in the farm hospitalisations, the part of the body most commonly injured was *Wrist & hand* (24%). This proportion was substantially lower than the 38% of hospitalisations for work-related *Wrist & hand* injuries nationally.

The next most common bodily location of injury was the *Knee & lower leg* (16%) followed by injuries to the *Trunk* (14%) and *Head* (13%). These proportions for farm hospitalisations were all higher than the proportions for all Australian workers.

There was little difference between the proportions for farm hospitalisations compared with all Australian workers in the other bodily locations.

Figure 23 Farm work-related hospitalisations June 2006 to July 2009: percentage by bodily locations of injury



The data on bodily location by age shows similar patterns across the age groups. An exception is the 65 years & over age group which had a lower proportion of hospitalisations due to *Wrist & hand* (17% compared with 24% to 29% for the other age groups) but a much higher proportion of hospitalisations due to *Hip & thigh* (10% compared with 3% to 4% for the other age groups).

Table 14 shows that the youngest age group (15–24 years) recorded a slightly higher proportion of hospitalisations for injuries to the *Head* (16%) compared with the other age groups (11% to 13%).

Table 14 Farm work-related hospitalisations July 2006 to June 2009: percentage by bodily location of injury and age group

	Age group (years)					
Type of injury	**15–24**	**25–34**	**35–44**	**45–54**	**55–64**	**65+**
Wrist & hand	24%	26%	29%	24%	25%	17%
Knee & lower leg	15%	16%	16%	17%	15%	17%
Trunk	11%	11%	14%	17%	17%	15%
Head	16%	12%	11%	13%	11%	12%
Elbow & forearm	7%	9%	7%	7%	8%	7%
Shoulder & arms	5%	6%	6%	6%	7%	8%
Hip & thigh	4%	3%	3%	3%	4%	10%
Ankle & foot	5%	4%	3%	3%	3%	3%
Neck	3%	3%	2%	1%	2%	4%
Other injury	10%	11%	10%	9%	8%	7%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The way forward

The *Australian Work Health and Safety Strategy 2012–22* (Australian Strategy) includes a specific focus on the Agriculture sector in order to reduce the unacceptably high number of injuries and deaths that occur on farms. Each state and territory health and safety authority is developing programs to assist farmers improve safety on their farms.

The design of farm equipment is currently in the spotlight. While all new tractors must be sold with roll over protection structures (ROPS), there are still too many tractors without ROPS on farms. As shown in this report many older farmers are killed in tractor rollovers that could have been avoided with the addition of ROPS on their tractors.

Another safety feature for tractors is the Safe Tractor Access Platform. These are relatively cheap and easy to install and could prevent many of the 'run-over' injuries and fatalities.

Deaths and injuries from quad bike use on farms is also a very important issue. The Australian Government has established QuadWatch which brings together industry, manufacturers, quad bike users and government to improve quad bike safety. Following the release of a discussion paper and a number of forums some quad bike manufacturers are now playing a positive role in offering to fit crush protection devices as a safety feature. Safe Work Australia will work with state and territory regulators to institute a ban on children under 16 years operating a quad bike of full size in a workplace.

The Minister for Employment and Workplace Relations also announced a quad bike lifetime product stewardship program to be managed by Safe Work Australia and the University of Sydney's Australian Centre for Agricultural Health and Safety. This initiative will allow new buyers of quad bikes to register their machine within this program for the life of the machine and to report any incidents. It is envisaged that this program will provide a way to track incidents into the future through the collection of data on all quad bike incidents, near misses, serious injuries and fatalities.

Farmers are busy people who face enormous pressures and uncertainties and improving health and safety on a farm can be viewed as an additional burden and cost. There is strong evidence that costs are reduced when health and safety risks are considered along with other business risks. Advice and assistance to farmers needs to be practical and delivered locally by people who are respected by farmers.

The Beyond Common Sense report provided advice on how to provide relevant work health and safety information to farmers and farm workers. The suggestions were:

- Farmers will be most engaged when the information imparted is of immediate and practical benefit to them.
- Farmers are most likely to become involved when the training/ information is provided in places where they are already gathered, for example, at field days, sale yards or local meetings.

- When teaching farmers about legislative change, many farmers indicated that they would prefer the balance of the training to concentrate on teaching the practical skills that the legislation requires rather than on the rationale for the legislation.
- Farmers prefer to be taught by other farmers who are experts in health and safety rather than by generic health and safety experts

Farm deaths and injuries have a huge impact on farmers and agricultural workers and their families. For many farmers a serious injury to themselves or an injury or death to one of their workers is likely to result in huge personal and financial costs and sometimes the loss of their farm. And yet so many of the incidents that result in serious injury or death could have been avoided by a little planning and forethought, a little extra cost and time to make the work safer.

Under the Australian Strategy we will foster relationships between regulators, manufacturers, designers, suppliers, farmers and farming associations to find practical and cost effective solutions to some of the hazards farmers and their employees face on a daily basis.

Explanatory Notes

Workers' compensation claims

Scope and coverage

The workers' compensation claims statistics presented in this publication are compiled annually from accepted claims made under the state, territory and Australian Government workers' compensation Acts, that form part of the National Data Set for Workers' Compensation Statistics (NDS). The data shown for a particular financial year refer to all accepted claims for which payments were made (apart from payments for goods and services like medical treatment) lodged from 1 July to 30 June.

The claims statistics in this report do not cover all cases of work injuries and diseases for the following reasons:

- Claims arising from a journey to or from work are excluded.
- While general state, territory and Australian Government workers' compensation legislation provides coverage for the majority of employees, some specific groups of workers are covered under separate legislation. Claims lodged by police in Western Australia and military personnel of the Australian Defence Forces (ADF) are not included in the claims data.
- Workers' compensation schemes do not generally provide coverage to self-employed workers, resulting in an understatement of the number of work-related injuries and diseases of workers employed in industries where self-employed workers are common. These industries include Agriculture, forestry & fishing, Construction, and Road transport. Large proportions of Managers & administrators and Tradespersons & related workers are also self-employed. Estimates of jobs and hours used as denominators in calculating incidence and frequency rates include only those worked by employees eligible for workers' compensation.

Type of occurrence data

Details of the 'description of the occurrence' reported on the workers' compensation claim have been coded using the Type of Occurrence Classification System, Second Edition, (May 2002) (TOOCS2.1). Throughout this publication TOOCS categories appear in italics.

The five variables used to describe the type of occurrence are:

Nature of Injury or Disease.
Bodily Location of Injury or Disease.
Mechanism of Injury or Disease.
Breakdown Agency of Injury or Disease.
Agency of Injury and Disease.

See the Glossary for the definitions of these variables.

Denominator data used to calculate incidence and frequency rates

Estimates of the number of employees and hours worked for each Australian workers' compensation jurisdiction are supplied annually by the ABS. The ABS provides two sets of estimates for each jurisdiction: one split by sex, age and industry and the second by occupation. This restricts presentation of incidence and frequency rates to the categories that ABS data support i.e. it is not possible to calculate rates by occupation within an industry.

The denominator data are derived principally from the LFS, adjusted to account for differences in scope between the LFS and workers' compensation coverage. The largest

adjustment is for workers who have more than one job. Because a person holding two or more jobs (a multiple jobholder) may lodge a workers' compensation claim with respect to an illness or injury incurred in any of those jobs, a count of jobs is a more appropriate denominator than a count of persons in calculating incidence rates. The multiple jobholder adjustment adds around 5% to the number of employees in the LFS. Other adjustments aim to ensure correct industry of employer coding for employees working under labour hire arrangements.

While the ABS is able to adjust the employee estimates to account for the industries where the second job was worked it is unable to adjust the hours worked in a similar manner. All hours worked have been allocated to the industry of the main job.

Differences in movements between incidence and frequency rates occur because of differences in the two measures. The employee estimate is a head count of all employees who were employed during the reference period. This measure does not take into account the proportion who were not at work and therefore not at risk on any given day. The frequency rate however is a measure of exposure per actual hour of work. This measure also reflects that many workers work on a part-time basis.

More information on workers' compensation claims and classifications can be found at on the Safe Work Australia website.

Traumatic injury fatalities

The traumatic injury fatalities statistics in this report are compiled from workers' compensation claims, information on fatalities that are notified to work health and safety authorities in each jurisdiction under their work health and safety legislation and data from the National Coronial Information System (NCIS). In addition the media and accident investigation reports from the Australian Transport Safety Bureau relating to plane crashes, train crashes and maritime incidents are used to supplement information found in each of the datasets. Data on fatalities are published annually in the *Work-related Traumatic Injury Fatalities, Australia* reports that can be found on the Safe Work Australia website.

Inclusions

The data on traumatic injury fatalities covers fatalities due to work-related injuries and explicitly excludes deaths attributable to disease and other natural causes. Among conditions specifically included as injuries are those arising from poisonous plants and animals, environmental conditions (e.g. frostbite), allergic reactions and embolisms. Heart attacks and strokes are regarded as natural causes but where available information shows that a work-related injury directly triggers a fatal heart attack or stroke the fatality is included.

Exclusions

Deaths due to natural causes which includes deaths from heart attacks, strokes and diseases.

Deaths due to complications of surgical and medical care. Although the death of patients who die as a result of medical negligence or malpractice are in principle Bystander fatalities, deaths arising from such iatrogenic injuries are specifically excluded from this collection.

Suicide

The scope of this project excludes deaths resulting from self-harm because it is difficult to assess the extent of the connection between work and a decision to take one's own life, even when detailed information is available.

Deaths of persons undertaking criminal activity

Work-related injury fatalities exclude deaths of persons fatally injured while undertaking criminal activities, such as gaining illegal entry into a building or work site.

Calculation of fatality rates

Fatality rates are calculated as the number of deaths divided by the number of workers in the reference period from the LFS. Because work-related injury fatalities of the ADF within Australia are in scope of this report, worker estimates are supplemented with the average of levels of ADF permanent members' reported in the Department of Defence Annual Report.

Type of occurrence data

Details of the 'description of the occurrence' for fatalities have been recorded using the Type of Occurrence Classification System, Third Edition, May 2008 (TOOCS3.1). Throughout this publication, TOOCS categories appear in italics.

The variables used to describe the type of occurrence are:

Mechanism of Injury or Disease.

Breakdown Agency of Injury or Disease.

Agency of Injury and Disease.

See the Glossary for the definitions of these variables.

Hospitalisations

The data on hospital separations used in this report were provided by the Australian Institute of Health and Welfare (AIHW), from the National Hospital Morbidity Database (NHMD).

The formal term for a hospitalisation is a 'Separation', defined by the AIHW as a "formal, or statistical process, by which an episode of care for an admitted patient ceases". This is usually a discharge home, but is sometimes a transfer to another health care facility or death. This report studied separations that occurred during the three year period 1 July 2006 to 30 June 2009.

Since some patients may have had more than one episode of hospitalisation over the period, the count of hospitalisations is not a count of individuals. Hospitalisation data in this report is based on the "Principal diagnosis" which is the diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care.

This hospital separations information in this report includes data from all hospitals that contributed to the NHMD during the period 1 July 2006 to 30 June 2009. This includes nearly all public and private hospitals in Australia that provide acute care services.

This report examines the circumstances of workers who sustained an injury that required a stay in hospital. As such they can be considered a "serious injury" subset of workers who were injured since the injury required a stay in hospital. However, it is important to bear in mind that there may be a larger group of injured workers who received medical attention from a general practice clinic or a hospital casualty ward whose injuries are not recorded in these statistics.

The prime selection criterion for the inclusion of a hospital separation in this report was the recording of the activity at the time of injury as *While working for income* (ICD-10-AM code U73.0): defined as including paid work (manual or professional), transportation time to and from such activities, and work for salary, bonus and other types of income. Records were then further restricted to those for *Injury, poisoning and certain other consequences of external causes* (S00-T98).

The population group of separations was then further refined by excluding:-

- patients aged under 15 years
- separations where the patient was discharged to another acute hospital, and
- separations where the injury was due to complications of surgical or medical care.

Diagnoses and external causes of injury for hospitalisations were recorded using the International Statistical Classification of Diseases and Related health Problems, Tenth Revision, Australian Modification (ICD–10–AM). This system comprises classifications of diseases and external causes of injuries and poisoning, based on the World Health Organization's version of ICD-10. The ICD-10-AM classification is hierarchical, with 20 summary disease chapters that are divided into a large number of more specific disease groupings (represented by 3-character codes).

The main Data items used in this report are *External causes of morbidity and mortality (U50–Y98).* These codes allow identification of

- work-related injuries and in some cases the specific industry in which the patient was working when injured
- the cause of the injury the patient sustained, such as a fall or a traffic incident, and
- the place of occurrence of the injury (where specified).

The Type of injury and Bodily location categories used in this report are based on aggregation of various *Injury, poisoning and certain other consequences of external causes* (S00-T98) codes into simplified groups. These recodes are listed in detail in a previous hospital separations report (ASCC, 2007) available on the Safe Work Australia website.

Glossary

Workers' compensation claims definitions

The workers' compensation data presented in this report include all workers' compensation claims lodged for a work-related injury or disease that were accepted for and received compensation, with the exception of claims for injuries occurring to or from work (journey claims).

Age

The age of the employee at the time of injury or the date when the disease was first reported to their employer.

Breakdown agency of injury or disease

The object, substance or circumstance principally involved in or most closely associated with the events that culminated in the most serious injury or disease.

Disease

A condition resulting from repeated or long term exposure to an agent or event.

Employee

A person who works for a public or private employer and receives remuneration in wages, salary, a retainer fee from their employer while working on a commission basis, tips, piece-rates, or payment in kind; or a person who operates his or her own incorporated enterprise with or without hiring employees.

Frequency rate

The number of serious claims per million hours worked by employees. Frequency rates are calculated using the following formula:

$$\frac{\text{number of serious occupational injury and disease claims} \times 1\,000\,000}{\text{number of hours worked by employees}}$$

Incidence rate

The number of serious claims per thousand employees. Incidence rates are calculated using the following formula:

$$\frac{\text{number of serious occupational injury and disease claims} \times 1000}{\text{number of employees}}$$

Industry

The industry shown in the claims section is the industry of the establishment that formally employs the claimant, classified to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 edition (ABS Cat. No. 1292.0).

As we are measuring industry of employer, a claim made by a person employed under labour hire arrangements is coded to the Contract staff services industry class (ANZSIC code 7862) which is part of the Property & business services industry division. Industry of employer will be different to Industry of workplace for a range of workers.

Injury

A condition resulting from a single traumatic event where the harm or hurt is immediately apparent for example a cut resulting from an accident with a knife or burns resulting from an acid splash.

Location of injury or disease

The bodily location of Injury/ disease is intended to identify the part of the body affected by the most serious injury or disease.

Mechanism of injury or disease

The action, exposure or event which directly caused the most serious injury or disease incurred by the employee.

Nature of injury or disease

The type of injury or disease for the most serious injury or disease sustained or suffered by the worker.

Occupation

The occupation of the employee making the claim as coded to the Australian Standard Classification of Occupations 2nd Edition.

Time lost

Time lost figures shown in this publication are measured in working weeks lost from work and exclude estimates of future absences. Time lost from work comprises the total period of time for which compensation was paid — the time lost is not necessarily continuous and may occur over a number of separate periods. Where an employee returns to work on a part-time basis they may continue to receive pro-rata payments and the total number of hours for which compensation has been paid is included in calculating time lost.

Working week

The number of working weeks lost is calculated by dividing the amount of time lost by the hours usually worked per week by the employee. Claims requiring one working week or more of time off count as serious.

Traumatic injury fatalities definitions

Bystander fatality

The death of a person who dies from injuries sustained as a result of another person's work activity and who was not engaged in a work activity of their own or traveling to or from their own workplace at the time of the injury.

A traffic incident death is only classified as a Bystander fatality when attributable to someone else's work activity. Typically this means the driver of a work vehicle is at fault. Cases where fault could not be determined with sufficient confidence are excluded.

Employed

The denominators used in calculating fatality rates in this report are based on ABS estimates of Employed persons, as defined in Labour force, Australia (ABS cat no 6202.0). This population includes Employees, who work for an employer; self-employed persons, whether they employ others or not; and those who work without pay for a family business or farm. It excludes persons whose only work is voluntary.

Industry

A grouping of businesses that carry out similar economic activities. Fatalities data in this publication have been coded to the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 (ABS cat. no. 1292.0) and unless specified are shown at the industry division level.

Injury

A condition coded to 'External Causes of morbidity and mortality' and 'Injury, poisoning and certain other consequences of external causes' in the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM).

Mechanism of incident

The action, exposure or event which best describes the circumstances that resulted in the most serious injury.

Occupation

A set of jobs with similar sets of tasks. Fatalities data in this publication have been coded to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) (ABS cat. no. 1220.0) First edition and unless specified are shown at the major group level.

Mechanism of injury or disease

The action, exposure or event which directly caused the most serious injury or disease incurred by the employee.

Nature of injury or disease

The type of injury or disease for the most serious injury or disease sustained or suffered by the worker. This classification is based on an aggregated version of the International Classification of Diseases (tenth revision) - Australian Modification (ICD-10-AM).

Worker fatality

The death of a person who dies as a result of injuries sustained while at work, including those whose injury results from another's work activity.

Inquires

For further information regarding the contents of this publication contact:

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