



The University of Sydney  
AUSTRALIA

# Vehicle Injury associated with Australian Agriculture

## The Facts

## 2008

Facts and Figures on  
Farm Health and Safety Series  
No 14

National Farm Injury Data Centre



AUSTRALIAN CENTRE FOR AGRICULTURAL HEALTH AND SAFETY

© 2009 Australian Centre for Agricultural Health and Safety, University of Sydney.  
All rights reserved.

ISBN: 1 876491 26 4

***Vehicle injury associated with Australian Agriculture – The Facts 2008.***

Authors: Morton C, Fragar L and Pollock K.

The information contained in this publication is intended for general use to assist public knowledge and discussion and to help improve health and safety on Australian agricultural enterprises. While reasonable care has been taken in preparing this publication to ensure that information is true and correct, the Commonwealth of Australia gives no assurance as to the accuracy of any information in this publication.

The development and production of this booklet has been funded by the Australian Department of Health and Ageing.

This publication is copyright. Apart from any use as permitted under the Copyright Act 1968, all other rights are reserved. However, wide dissemination is encouraged. Requests and inquiries concerning reproduction and rights should be addressed to the Australian Centre for Agricultural Health and Safety.

**Researcher Contact Details**

Australian Centre for Agricultural Health and Safety  
University of Sydney  
PO Box 256  
MOREE NSW 2400

Phone: 02 6752 8210  
Fax: 02 6752 6639  
Email: [aghealth@health.usyd.edu.au](mailto:aghealth@health.usyd.edu.au)

Published in June 2009

## CONTENTS

Summary	
1. Introduction	1
2. The Australian agriculture industries	2
3. Vehicle deaths of farm-related occupational groups	5
3.1 Accidental transport deaths of farmers and farm workers	5
3.2 Cause of death 1990-1996	8
3.3 Cause of death 1997-2002	9
4. On-farm injury deaths 2001-2004	12
4.1 Utilities	14
4.2 4-wheeled motorcycles	15
4.3 2-wheeled motorcycles	16
4.4 Cars	17
4.5 Trucks	18
5. Admissions to NSW Hospitals	19
6. Fatal transport related workers' compensation claims	22
7. Non-fatal transport related workers' compensation claims	23
7.1 Number of claims	23
7.2 Age of claimants	24
7.3 Industry	25
7.4 Motorcycle Injury	26
8. Other studies	28
References	31
Contacts	32

## Summary

Farm vehicles such as cars, utes, trucks, 4 wheel drive vehicles and 2 and 4 wheel motorcycles (quad bikes) are an integral part of most agricultural production systems in Australia. However, these are associated with serious injury and deaths and have emerged as a key safety issue for the industry. Farm vehicles are also used by family members and visitors for recreational purposes. Whether used for work or leisure, speed may be a contributing factor in association with type of terrain, experience of driver and lack of safety precautions such as wearing of seat belts, speed restriction or general vehicle maintenance.

Motor vehicle accidents make up around 50% of non-intentional injury deaths of those whose occupation is farmer/farm manager or farm worker. Of these around 8.5 % are due to off-road vehicle injury, presumably mostly occurring on farms.

Examination of coronial deaths data relating to all non-intentional injury deaths that occur on a farm shows that for the period 2001-2004 there were a total of 384 deaths of which 133 (34%) were associated with farm vehicles. Of these on-farm deaths:

- There were 22 on-farm deaths associated with farm utilities. Half of these were deaths of passengers, 6 of whom were on the back of the utility, 7 were drivers, 2 were bystanders and 2 were persons undertaking vehicle maintenance. The largest single cause of utility-related death was of victims on the back of utilities in the course of shooting or hunting activity on farms.
- There were 51 on-farm deaths associated with 4-wheeled motorcycles (quad bikes). Seven of these were deaths of passengers, and 44 were riders. The vast majority of those who died were riders aged 55 years and over. For the majority of cases the activity for which the quad bike was being used is unknown, but the work of mustering, spraying and checking was associated with a high proportion of the deaths associated with rollover of the quad bike.
- There were 17 deaths of riders of 2-wheeled motor cycles. All cases were males. Two cases were associated with use of the motorcycle for mustering, and in 10 cases the motorcycle was most likely being used in leisure activities. The greatest number of deaths associated with 2-wheeled motorcycles occurred in young adults.
- There were 11 deaths associated with cars, including 4WDs. Four were deaths of passengers in cars, and 7 were of drivers. The majority of deaths were of adults.
- There were 9 deaths associated with trucks. Six of these were of drivers, and 3 were associated with hydraulics failure during maintenance type activity.

The main agents associated with admission to NSW hospitals due to an on-farm injury were motorcycles (22.5%), horses (9.7%), and motor vehicles (4.5%). Of the motorcycle injuries, 44.1% were of people aged 10-14 years of age and the greater majority were males.

Road transport-type vehicles make up around 7.4% of non-fatal workers compensation claims in the Agriculture industries across Australia, and 27% of claims due to death. For non-fatal injury claims, motorcycles (all types) comprise 59% of vehicle-related claims, while for fatal injury claims, trucks made up 44% of vehicle-related claims.

This publication provides information about vehicles injury and deaths on Australian farms, and will be useful for development of programs, promotions and resources aimed at reducing risk associated with vehicle use.

## 1. Introduction

Farm vehicles such as utilities (utes), trucks, 4 wheel drive vehicles and 2 and 4 wheel motorcycles (quad bikes) are an integral part of most agricultural production systems in Australia. Quad bikes have previously been known as All Terrain Vehicles (ATV's). However they are not vehicles for all terrains. While there has been a steady increase in the number of quad bikes in use on farms over the past decade and associated injury and deaths rates (this topic is covered specifically in the publication *ATV Injury on Australian Farms - The Facts 2007, No 8 in the Facts and Figures on Farm Health and Safety Series*) other farm vehicles remain a prime agent of injury and death for people living and working on Australian farms.

In a study of Traumatic deaths in Australia (No 11 in the Facts and Figures on Farm Health and Safety Series) by Pollock *et al* (2007) farm vehicles were found to be the third most common agent of death following tractors and quad bikes, causing between 9% of all deaths and 11% of deaths of children.

Work-related uses for farm vehicles on farms in Australia include:

- personal travel around the farm
- mustering of livestock
- supervision of working field crews
- inspection of farm structures and activities
- carrying and towing of equipment and animals
- spraying of weeds and animal pest management practices.

Farm vehicles may often be used in urgent situations such as at harvest time or in other emergencies. They are also used by family members and visitors for recreational purposes. In both cases speed may have a contributing factor in association with type of terrain, experience of driver and lack of safety precautions such as wearing of seat belts, speed restriction or general vehicle maintenance.

There is no single database that holds all the information necessary to define the nature and scale of health and safety problems in the farming community. This document aims to collate information on traumatic death and injury known to have occurred on Australian farms in association with farm vehicles. Data was sourced primarily from the Australian Bureau of Statistics (ABS), the Australian Workers Compensation Scheme, the National Coroner's Information System and the NSW Hospitals Inpatients Statistics Collection.

While there are limitations to the various data sets used to source information, especially the lag period of data collection, it is hoped that this summary can improve the health and safety of people living and working on Australian farms. The document summarises all current data available to the National Farm Injury Data Centre (NFIDC) and has been produced to provide guidance to agencies and individuals working to reduce risk associated with living and working on farms in Australia. The publication is available electronically for use by educators and speakers and those whose role is the development of public and industry policy to improve safety.

## 2. The Australian agriculture industries

The 2005-06 Agricultural Census found that there were an estimated 137,968 agricultural businesses involved in agriculture. In addition an estimated 16,504 non-agricultural businesses also undertook some form of agricultural activity in 2005-06, making a total of 154,472 agricultural businesses (Table 1). Farms undertake a wide range of activities to produce different commodities and each production system can be associated with its own set of hazards to health and safety.

**Table 1: Number of businesses with agricultural activity\*, Australia 2005-2006**

<b>Horticulture</b>	0111	Nursery production (undercover)	351
	0112	Nursery production (outdoors)	923
	0113	Turf growing	339
	0114	Floriculture (undercover))	224
	0115	Floriculture (outdoors)	670
	0121	Mushroom growing	106
	0122	Vegetable growing (undercover)	1,043
	0123	Vegetable growing (outdoors)	4,077
	0131	Grape growing	6,692
	0132	Kiwifruit growing	38
	0133	Berry fruit growing	522
	0134	Apple and pear growing	679
	0135	Stone fruit growing	1,276
	0136	Citrus fruit growing	1,387
<b>Grain, sheep, beef farming</b>	0137	Olive growing	359
	0139	Other fruit and nut tree growing	3,437
	0141	Sheep farming (specialised)	13,093
	0142	Beef cattle farming (specialised)	42,691
	0143	Beef cattle feedlots (specialised)	705
<b>Other crop</b>	0144	Sheep-beef cattle farming	8,242
	0145	Grain-sheep or grain-beef cattle farming	14,843
	0146	Rice growing	787
	0149	Other grain growing	12,478
<b>Dairy farming</b>	0151	Sugar cane growing	4,207
	0152	Cotton growing	687
	0159	Other crop growing nec	2,362
	0160	Dairy cattle farming	9,371
<b>Poultry farming</b>	0171	Poultry farming (meat)	860
	0172	Poultry farming (eggs)	468
<b>Other livestock farming</b>	0180	Deer farming	136
	0191	Horse farming	2,478
	0192	Pig farming	914
	0193	Beekeeping	728
	0199	Other livestock farming nec	796
<b>Total agriculture</b>	<b>01</b>		<b>137,968</b>
<b>All other industries</b>	<b>99</b>		<b>16,504</b>
<b>Total all industries</b>	<b>#</b>		<b>154,472</b>

Source: ABS Agricultural Commodities, Australia, 2005-06 (7121.0).

Note: \*In 2005-06 agricultural establishment data changed to Australian Business Register (ABR) data which is not directly comparable to prior ABS commodities data (see Table 1).

## 4. On-farm injury deaths 2001-2004

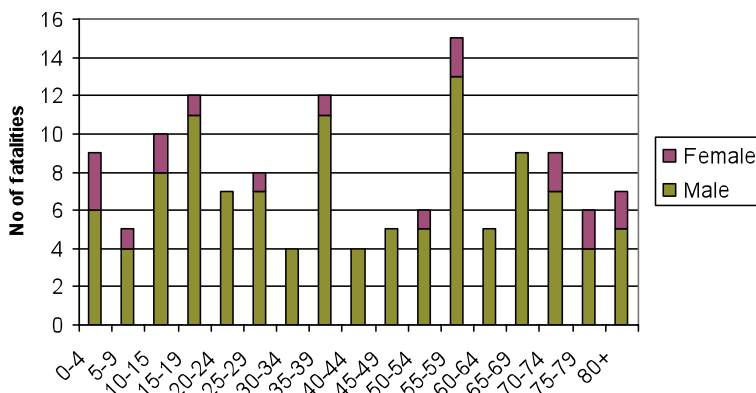
The National Farm Injury Data Centre (NFIDC) has used the internet based National Coroners Information System (NCIS) to extract farm related fatalities for the period 2001-2004. The data includes only those cases which have been closed by the Coroner at time of analysis.

For the period 2001-2004 there were a total of 384 deaths which occurred on farms throughout Australia (Table 11). Thirty four percent (n=133) of those deaths were associated with farm vehicles as listed below. This data presents cases of farm deaths for all ages, including children (see Figure 11).

**Table 11: On-farm deaths, by agent, Australia 2001-2004**

Role on farm	No of deaths	%
Farm vehicle	133	34.6
<i>Truck</i>	9	2.3
<i>Utility</i>	22	5.7
<i>Car</i>	11	2.9
<i>Motorcycle 2 Wheel</i>	17	4.4
<i>Motorcycle 4 Wheel</i>	51	13.3
<i>Aircraft</i>	11	2.9
<i>Gyrocopter</i>	1	0.3
<i>Helicopter</i>	3	0.8
<i>Farm Vehicle other NEC</i>	7	1.8
<i>Unknown</i>	1	0.3
Mobile farm machinery/plant	101	26.3
Farm structure	63	16.4
Animal	26	6.8
Working environment	31	8.1
Fixed plant/equipment	8	2.1
Workshop equipment and materials	10	2.6
Other agents	12	3.1
<b>Total</b>	<b>384</b>	<b>100</b>

Source: NFIDC NCIS database 2007

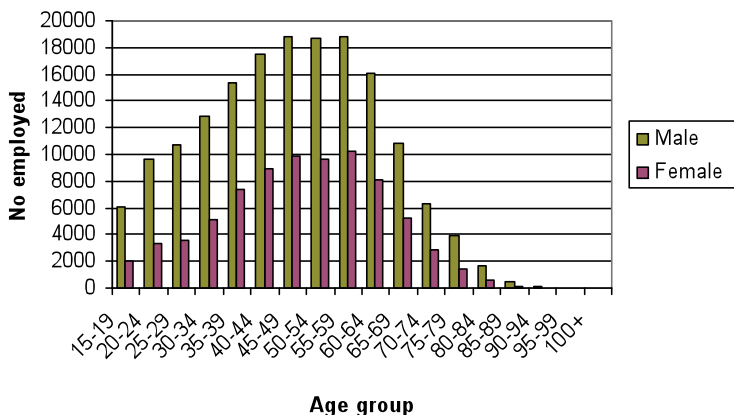


**Figure 11: Vehicle related on-farm deaths, by age group and sex, Australia 2001-2004 (n=133)**

Source: NFIDC NCIS database 2007

## 2. The Australian agriculture industries (continued)

A total of 246,600 people recorded that they were employed in agriculture in the 2006 Census of Population and Housing (see Figure 3). Of those 159,111 (65%) were classified under ANZSCO occupation codes as farmers/farm managers and 42,903 (17%) were farm labourers (Figure 4).



**Figure 3: Number of people employed in agriculture\*, by age group, Australia 2006 (n=246,600)**

Source: 2006 Census of Population and Housing , ABS 2008

Note: \*Industry of Employment (ANZSIC06)



**Figure 4: Number of people employed in agriculture\* by occupation#, Australia 2006 (n=246,600)**

Source: 2006 Census of Population and Housing , ABS 2008

Note: \*Industry of Employment (ANZSIC06) and #ANZSCO Occupation 06



### 3. Vehicle deaths of farm-related occupation groups

#### 3.1 Accidental transport deaths of farmers and farm workers

Cause of Death data produced by the Australian Bureau of Statistics allows analysis of injury-related fatalities according to the occupational groups *Farmers and farm managers* (code 1400) and *Agricultural labourers* (code 8200) up to the year 2002. The deaths recorded below include non-intentional injury deaths which have occurred to the above occupational groups which may have occurred **on or off a farm**. Injuries coded to the occupational groups *Retired farmers and farm managers* and *Retired agricultural labourers* are not included, nor are family members who have recorded their occupation as something else (for example farm women working full or part-time off farm) and children under the age of 15 years.

The following mortality data is presented for the period 1990-2002 which uses the two international coding systems for two periods - ICD 9-AM (1990-1996) and ICD 10AM (1997-2002). The ABS has been unable to provide data by occupation from 2002 onwards, preventing analysis of deaths associated with the agriculture sector from that time.

For the period 1990-2002 a total of 2,069 accidental injury-related deaths occurred to people of both sexes employed as farmers/farm managers and agricultural workers. Of these a total of 1,030 deaths (49.8.1%) were vehicle related (car, motorcycle, truck, van, utility). Of these 90 percent were on-road traffic deaths (Tables 3 and 4).

**Table 3: Vehicle related# non-intentional injury deaths of farm managers and workers\*, by sex, Australia, 1990-1996 (ICD 9)**

E-codes	Description	Male	Female	Total	Percent
E810-819	Motor Vehicle Traffic Accidents	469	47	516	44.9
E820-825	Motor Vehicle Non traffic Accidents	45	2	47	4.1
E929.0	Late effects of motor vehicle accident	4	1	5	0.4
E988.5	Unknown intent – crash of motor vehicle	1	0	1	0.0
E840-889	All other accidents	536	45	581	50.6
	<b>Total</b>	<b>1,055</b>	<b>95</b>	<b>1,150</b>	<b>100.0</b>

Source: ABS Mortality Data (HOIST), January 2008

Note: #Transport accidents where motor-vehicles (cars, motorcycles, ATVs, trucks, tractors, vans, utes) are involved.

\* Occupation codes 1400 and 8200

**Table 4: Vehicle related non-intentional injury deaths of farm managers and workers\*, by sex, Australia, 1997-2002 (ICD 10AM)**

ICD code	Description	Male	Female	Total	Percent
V01-V99#	Vehicle-related traffic accidents	366	46	412	44.8
V01-V99#	Vehicle related non-traffic accidents	52	3	55	6.0
Y85.9	Sequelae of other and unspecified transport accidents	1		1	0.1
W00-X59	All other accidents	405	46	451	49.1
	<b>Total</b>	<b>824</b>	<b>95</b>	<b>919</b>	<b>100.0</b>

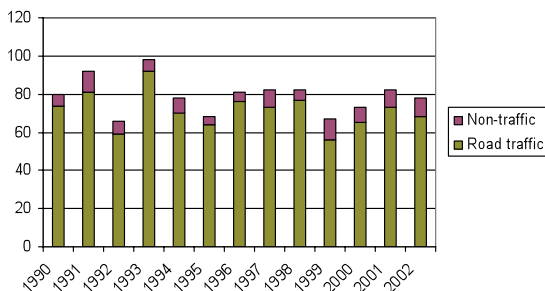
Source: ABS Mortality Data (HOIST), January 2008.

Note: \* Occupation codes 1400 and 8200

#excludes agricultural tractors

### 3. Vehicle deaths of farm-related occupation groups (continued)

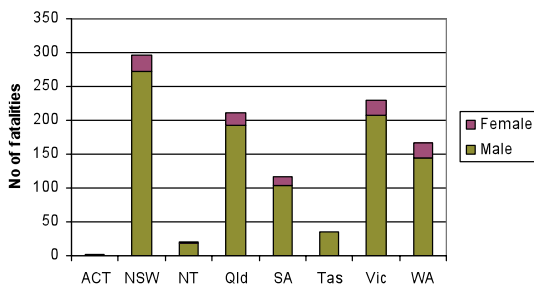
The number of traffic and non-traffic (off-road) vehicle related deaths occurring to farmers, farm managers and farm workers by year is shown in Figure 5.



**Figure 5: Vehicle related# non-intentional traffic and non-traffic vehicle injury deaths of farm managers and workers, by year, Australia 1990-2002 (ICD 9 and 10AM) (n=1027)**

Source: ABS Mortality Data (HOIST NSW Health), January 2008

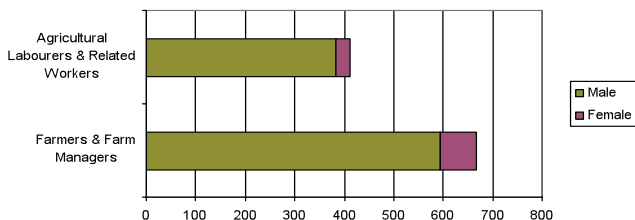
Note: #Excludes agricultural tractors



**Figure 6: Vehicle-related# non-intentional injury of farm managers and workers, by state of death and sex, Australia 1990-2002 (ICD 9 and 10AM) (n=1,078)**

Source: ABS Mortality Data (HOIST NSW Health), January 2008

Note: # Includes agricultural tractors



**Figure 7: Vehicle related# non-intentional injury of farm managers and workers, by sex, Australia 1990-2002 (ICD 9 and 10AM) (n=1,078)**

Source: ABS Mortality Data (HOIST NSW Health), January 2008

Note: #Includes agricultural tractors

### 3. Vehicle deaths of farm-related occupation groups (continued)

Table 5 and Figure 8 show the age profile of vehicle related transport deaths occurring over the period 1990-2002. The highest number of vehicle related deaths occurred in the 15-19, 20-24 and 25-29 year old age groups.

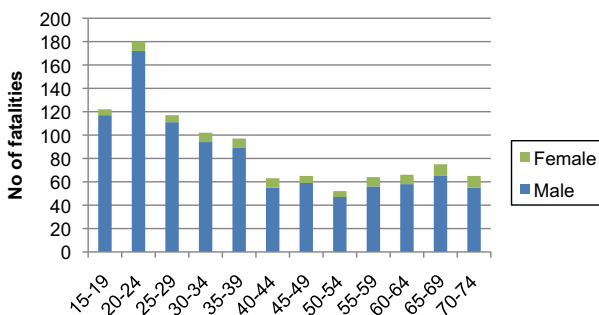
**Table 5: Vehicle related# non-intentional injury deaths of farm managers and workers\*, by age group and sex, Australia 1990-1996 (ICD 9) and 1997-2002 (ICD 10AM)**

Age group (years)	Male	Female	Total	Percent
15-19	117	5	122	11.4
20-24	172	8	180	16.9
25-29	111	6	117	11.0
30-34	94	8	102	9.6
35-39	89	8	97	9.1
40-44	55	8	63	5.9
45-49	59	6	65	6.1
50-54	47	5	52	4.9
55-59	56	8	64	6.0
60-64	58	8	66	6.2
65-69	65	10	75	7.0
70-74	55	10	65	6.1
<b>Total</b>	<b>978</b>	<b>90</b>	<b>1,068</b>	<b>100</b>

Source: ABS Mortality Data (HOIST NSW Health), January 2008

Note\*: Occupation codes 1400 (Farmers & farm managers) and 8200 (Agricultural labourers & related workers).

#Includes agricultural tractors



**Figure 8: Vehicle-related# non-intentional injury deaths of farm managers and workers\*, by age group and sex, Australia 1990-1996 (ICD 9) and 1997-2002 (ICD 10AM) (n=1,078)**

Source: ABS Mortality Data (HOIST NSW Health), January 2008

Note: #Includes agricultural tractors \*Occupation codes 1400 (Farmers & farm managers) and 8200 (Agricultural labourers & related workers).

### 3. Vehicle deaths of farm-related occupation groups (continued)

#### 3.2 Cause of death 1990-1996

Table 6 below shows all vehicle related deaths for the period 1990-1996 (ICD 9 coding) which occurred to farmers and farm workers of both sexes. A total of 569 deaths (an average of 81.2 fatalities per year) occurred over the 7 year period.

**Table 6: Motor vehicle traffic non-intentional injury deaths of farm managers and workers\*, by external cause and sex, Australia, 1990-1996 (ICD 9)**

E-codes	Descriptions	Male	Female	Total	Percent
E810-819	Motor Vehicle Traffic Accidents				
E810.10	Collision with train	4	1	5	0.9
E812	Collision with motor vehicle	164	25	189	33.2
E813	Collision with other vehicle	4	1	5	0.9
E814	Collision with pedestrian	46	1	47	8.3
E815	Collision on the highway	133	12	145	25.5
E816-E817	Non-collision loss of control	105	7	112	19.7
E818	Other non-collision	6	0	6	1.1
E819	Unspecified nature	7	0	7	1.2
E820-825	Motor Vehicle Non traffic Accidents				
E821	Off-road motor vehicle	21	0	21	3.7
E822	Moving object	7	1	8	1.4
E823	Stationary object	3	1	4	0.7
E824-825	Other and unspecified nature	14	0	14	2.5
E929.0	Late effects of motor vehicle accident	4	1	5	0.9
E988.5	Unknown intent, crashing motor vehicle	1	0	1	0.2
<b>Total</b>		<b>519</b>	<b>50</b>	<b>569</b>	<b>100.0</b>

Source: ABS Mortality Data (HOIST NSW Health), January 2008

Note\*: Occupation codes 1400 (Farmers & farm managers) and 8200 (Agricultural labourers & related workers).

The highest proportion of vehicle-related deaths occurred as *Collision with a motor vehicle* (33.2%).and *Collision on the highway* (25.5%). There were a total of 47 non-traffic deaths (8.2%), or off-road injury deaths, that are most likely to have occurred on a farm.



### 3. Vehicle deaths of farm-related occupation groups (continued)

#### 4.3 Cause of death 1997-2002

Tables 7 and 8 below show more specific information relating to vehicle related deaths for the period 1997-2002 (ICD 10AM coding) which occurred to farmers and farm workers of both sexes. A total of 469 deaths (an average of 78.2 fatalities per year) occurred over the 6 year period.

**Table 7: Vehicle related# transport deaths of farmers and farm workers\*, by external cause of injury, Australia, 1997-2002 (ICD 10AM)**

Vehicle-related transport accidents		Male	Female	Total	Percent
V01-09	Pedestrian injured in transport accidents	44	4	48	10.2
V10	Pedal cyclist	0	1	1	0.2
V20-29	Motor cycle rider injured in transport accidents	49	1	50	9.8
V40-49	Car occupant	258	40	298	63.5
V50-59	Occupant of pick-up truck or van	15	0	15	3.2
V60-69	Occupant of heavy transport vehicle	8	0	8	1.7
V83&85	Occupant of industrial or construction vehicle	3	0	3	0.6
V86	Occupant of special all-terrain vehicle (ATV)	17	2	19	4.1
V87-Y85	Other and unspecified transport accidents	26	1	27	5.8
<b>TOTAL</b>		<b>420</b>	<b>49</b>	<b>469</b>	<b>100.0</b>

Source: ABS Mortality Data (HOIST), January 2006.

Note: \* Occupation codes 1400 and 8200 # excludes agricultural tractors

A large percent (63.6.5%) of vehicle related fatalities of farmers and farm workers occurred to *Car Occupants*. Of those, 284 (60.6% of total vehicle deaths) were classified as *Traffic accidents* (Table 8 and Figure 9).

**Table 8: Vehicle related# transport deaths of farmers and farm workers\*, by external cause of injury, Australia, 1997-2002 (ICD 10AM)**

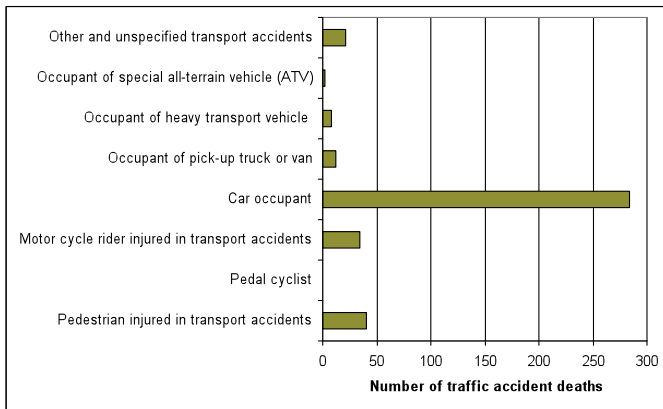
Vehicle-related transport accidents		Traffic	Non-traffic	Unknown	Total
V01-09	Pedestrian injured in transport accidents	40	8	0	48
V10	Pedal cyclist	1	0	0	1
V20-29	Motor cycle rider injured in transport accidents	34	16	0	50
V40-49	Car occupant	284	14	0	298
V50-59	Occupant of pick-up truck or van	12	3	0	15
V60-69	Occupant of heavy transport vehicle	8	0	0	8
V83, V85	Occupant of industrial or construction vehicle	0	3	0	3
V86	Occupant of special all-terrain vehicle (ATV)	2	17	0	19
V87-Y85	Other and unspecified transport accidents	21	1	5	27
<b>TOTAL</b>		<b>402</b>	<b>62</b>	<b>5</b>	<b>469</b>

Source: ABS Mortality Data (HOIST), January 2006.

Note\*: Occupation codes 1400 (Farmers & farm managers) and 8200 (Agricultural labourers & related farm workers) # excludes agricultural tractors

### 3. Vehicle deaths of farm-related occupation groups (continued)

Figure 9 shows the high numbers of on-road injury deaths associated with car use.

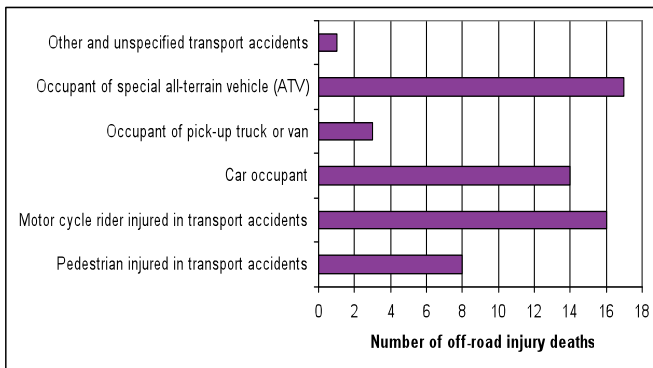


**Figure 9: Vehicle related traffic transport deaths of farmers and farm workers\*, by external cause of injury, Australia 1997-2002 (n=407)**

Source: ABS Mortality Data (HOIST), January 2006.

Note\*: Occupation codes 1400 (Farmers & farm managers) and 8200 (Agricultural labourers & related farm workers)

Figure 10 shows the importance of quadbikes, motorcycles, and cars in off-road injury deaths for those whose occupation is farm manager and farm worker.



**Figure 10: Vehicle related non-traffic transport deaths of farmers and farm workers\*, by external cause of injury, Australia 1997-2002 (n=97)**

Source: ABS Mortality Data (HOIST), January 2006.

Note\*: Occupation codes 1400 (Farmers & farm managers) and 8200 (Agricultural labourers & related farm workers)

### 3. Vehicle deaths of farm-related occupation groups (continued)

#### Vehicle occupants

Tables 9 and 10 show further detail of fatal accidents occurring to vehicle occupants only (motorcycle, car, ute, truck, tractor, quad bike). Data about location of accident such as on farm or public road is not available. Pedestrian and pedal cyclist deaths are not included.

The majority of deaths occurred to *Drivers* of vehicles in both traffic and non traffic accidents (Table 9). *Collision* with another vehicle was the main type of traffic accident (72.8%). A greater proportion of non traffic accident details were unspecified.

**Table 9: Number of fatal vehicle occupant accidents (V20-Y85) of farmers and farm workers, by driver status, Australia 1997-2002\***

Driver status	Traffic	%	Non traffic	%	Total
Driver	268	72.8	58	66.7	326
Passenger	65	17.7	13	14.9	78
Unknown/unspecified	35	9.5	16	18.4	51
<b>Total</b>	<b>368</b>	<b>100.0</b>	<b>87</b>	<b>100.0</b>	<b>455</b>

Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, June 2008

Note: \*Includes agricultural tractors

**Table 10: Number of fatal vehicle occupant accidents (V20-Y85) of farmers and farm workers, by impact type, Australia 1997-2002\***

Driver status	Traffic	%	Non traffic	%	Total
Collision	266	72.3	14	16.1	280
Non collision	75	20.4	17	19.5	92
Unknown/unspecified	27	7.3	56	64.4	83
<b>Total</b>	<b>368</b>	<b>100.0</b>	<b>87</b>	<b>100.0</b>	<b>455</b>

Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, June 2008

Note: \*Includes agricultural tractors



## 4. On-farm injury deaths 2001-2004

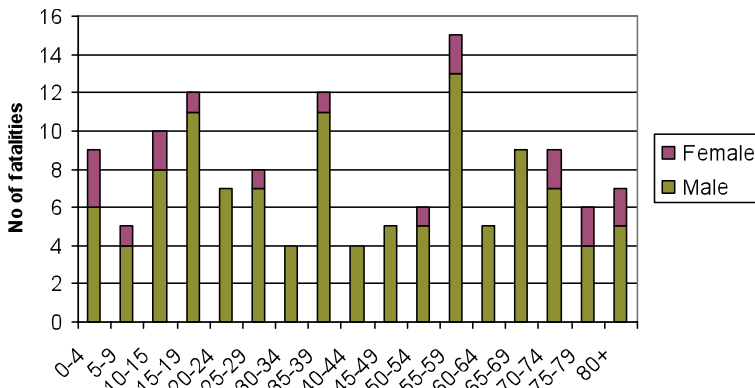
The National Farm Injury Data Centre (NFIDC) has used the internet based National Coroners Information System (NCIS) to extract farm related fatalities for the period 2001-2004. The data includes only those cases which have been closed by the Coroner at time of analysis.

For the period 2001-2004 there were a total of 384 deaths which occurred on farms throughout Australia (Table 11). Thirty four percent (n=133) of those deaths were associated with farm vehicles as listed below. This data presents cases of farm deaths for all ages, including children (see Figure 11).

**Table 11: On-farm deaths, by agent, Australia 2001-2004**

Role on farm	No of deaths	%
Farm vehicle	133	34.6
<i>Truck</i>	9	2.3
<i>Utility</i>	22	5.7
<i>Car</i>	11	2.9
<i>Motorcycle 2 Wheel</i>	17	4.4
<i>Motorcycle 4 Wheel</i>	51	13.3
<i>Aircraft</i>	11	2.9
<i>Gyrocopter</i>	1	0.3
<i>Helicopter</i>	3	0.8
<i>Farm Vehicle other NEC</i>	7	1.8
<i>Unknown</i>	1	0.3
Mobile farm machinery/plant	101	26.3
Farm structure	63	16.4
Animal	26	6.8
Working environment	31	8.1
Fixed plant/equipment	8	2.1
Workshop equipment and materials	10	2.6
Other agents	12	3.1
<b>Total</b>	<b>384</b>	<b>100</b>

Source: NFIDC NCIS database 2007



**Figure 11: Vehicle related on-farm deaths, by age group and sex, Australia 2001-2004 (n=133)**

Source: NFIDC NCIS database 2007



#### 4. On-farm injury deaths 2001-2004 (continued)

Thirty nine percent of on-farm fatalities associated with farm vehicles occurred while the victim was undertaking farm work. Twenty four percent (24.1%) of all vehicle deaths occurred to farm visitors other than contract workers (Table 12).

**Table 12: Vehicle related on-farm deaths, by role on farm and work status, Australia 2001-2004**

Role on farm	Work status				Total
	Farm resident	Visitor	Worker/contractor	Other/unknown	
Working for income	28	2	19	3	52
Other type of work (inc. housework)	20	12	2	4	38
Leisure activity	6	11	3	3	23
Sports activity	1	5	2	0	8
Other activity	3	1	0	1	5
Unspecified activity	2	1	1	3	7
<b>Total</b>	<b>60</b>	<b>32</b>	<b>27</b>	<b>14</b>	<b>133</b>

Source: NFIDC NCIS database 2007



Source: MF Morton

## 4.1 On-farm deaths 2001-2004 – farm utilities

There were 22 on-farm deaths associated with farm utilities during the period 2001-2004. Half of these (11) were deaths of passengers, 6 of whom were on the back of the utility. Seven (7) were drivers, 2 were bystanders and 2 were persons undertaking vehicle maintenance. The age distribution of those who died is shown in Table 13. Four drivers in the older age group were fatally injured when the utility moved after they had alighted the vehicle.

**Table 13: Deaths associated with utilities on farms – age of victim and mechanism of injury death, 2001-2004, Australia**

Injury death, 2004-2004, Australia						
Mechanism of injury	Age group of victim					Total
	0-9	10-14	15-29	30-54	55+	
<b>Passenger</b>						
On back of ute		2	2	2		6
Sitting on driver's lap/fell out	2					2
Other		1	1		1	3
<b>Bystander</b>						
Run over by utility				1	1	2
<b>Driver</b>						
Got out, run over/ crushed					4	4
Swerved, lost control			1	1	1	3
<b>Mechanic/operator</b>						
Welding explosion			1			1
Changing tyre/jack failed				1		1
<b>Total</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>22</b>

Source: NFIDC NCIS Database, 2007

The activities being undertaken are shown in Table 14. The largest single cause of utility-related death was of victims on the back of utilities in the course of shooting or hunting activity on farms.

**Table 14: Deaths associated with utilities on farms - activity being undertaken and mechanism of injury death, 2001-2004, Australia**

Mechanism of injury	Activity being undertaken						
	Shooting/ hunting	Checking	Vehicle main- tenance	Mustering	Work other	Spraying	Watering
<b>Passenger</b>							
On back of ute	6						
Sitting on driver's lap/fell out		2					
Other			1				
<b>Bystander</b>							
Run over by utility				2			
<b>Driver</b>							
Got out, run over/ crushed		2					1
Swerved/ lost control						1	
<b>Mechanic/operator</b>							
Welding explosion			1				
Changing tyre/jack failed			1				
<b>Total</b>	<b>6</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>3</b>

Source: NFIDC NCIS Database, 2007

## 4.2 On-farm deaths 2001-2004 – 4-wheeled motorcycles

There were 51 on-farm deaths associated with 4-wheeled motorcycles (quad bikes) on Australian farms during the period 2001-2004. Seven of these were deaths of passengers, and 44 were riders. The age distribution of those who died is shown in Table 15. The vast majority of those who died were riders aged 55 years and over.

**Table 15: Deaths associated with 4-wheeled motorcycles on farms – age of victim and mechanism of injury death, 2001-2004, Australia**

Mechanism of injury	Age group of victim				
	0-9	10-14	15-29	30-54	55+
<b>Passenger</b>					
Quad bike rolled and pinned victim	2	1			
Fell off		1			
Loss of control of quad bike and crushed, or other					
<b>Rider</b>					
Quad bike rolled and pinned victim	2		1	5	15
Thrown from quad bike after incident		2	4	2	2
Loss of control of quad bike, crushed or other			1		2
Collision with other vehicle					2
Loading quad bike onto ute				1	
Knocked by bull, quad bike rolled					1
Unknown	1				3
<b>Total</b>	<b>5</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>25</b>

Source: NFIDC NCIS Database, 2007

The activities being undertaken are shown in Table 16. For the majority of cases the activity for which the quad bike was being used is unknown, but the work of mustering, spraying and checking was associated with a high proportion of the deaths associated with roll over of the quad bike.

**Table 16: Deaths associated with 4-wheeled motorcycles on farms - activity being undertaken and mechanism of injury death, 2001-2004, Australia**

Mechanism of injury	Activity being undertaken						
	Shooting/ hunting	Checking	Mustering	Work other	Spraying	Leisure	Unknown
<b>Passenger</b>							
Quad bike rolled and pinned victim							3
Fell off							1
Loss of control of quad bike, crushed or other							3
<b>Rider</b>							
Quad bike rolled and pinned victim		3	3	3	5		9
Thrown from quad bike after incident	1	1	2	1			5
Loss of control of quad bike, crushed or other	1					1	1
Collision with other vehicle		1		1			
Loading quad bike onto ute				1			
Knocked by bull, quad bike rolled			1				
Unknown			1				3
<b>Total</b>	<b>2</b>	<b>5</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>1</b>	<b>25</b>

Source: NFIDC NCIS Database, 2007

### 4.3 On-farm deaths 2001-2004 – 2-wheeled motorcycles

There were 17 deaths of riders of 2-wheeled motor cycles between 2001 and 2004 on Australian farms. All cases were males.

Two cases were associated with use of the motorcycle for mustering, and in 10 cases the motorcycle was most likely being used in leisure activities. In 5 cases there was no information to determine the activity being undertaken at the time of death.

The age distribution of the victims is shown in Table 17. The greatest number of deaths associated with 2-wheeled motorcycles occurred in young adults.

**Table 17: Number of deaths associated with 2-wheeled motorcycle riding on farms - age distribution of victims, 2001-2004, Australia.**

	Age group					Total
	0-9	10-14	15-29	30-54	55+	
Number	1	2	10	3	1	17

Source: NFIDC NCIS Database, 2007



## 4.4 On-farm deaths 2001-2004 – cars

There were 11 deaths associated with cars, including 4WDs, on Australian farms between 2001 and 2004. Four were deaths of passengers in cars, and 7 were of drivers. The activity for which the cars were being used is not available for any of these cases.

Table 18 indicates the age group of victims of car-related vehicle deaths. The majority of deaths were of adults.

**Table 18: Deaths associated with cars on farms – age of victim and mechanism of injury death, 2001-2004, Australia**

Mechanism	Age group of victim					
	0-9	10-14	15-29	30-54	55+	Total
Passenger						
Fell out of towed vehicle	1					1
Seated on exterior of car, fell off		1				1
Car rolled					2	2
Driver						
Loss of control/hit object/rolled				2	2	4
Out of car, run over or crushed by car				1	2	3
Total	1	1		3	6	11

*Source: NFIDC NCIS Database, 2007*



## 4.5 On-farm deaths 2001-2004 – trucks

There were 9 deaths associated with trucks on Australian farms for the period 2001 to 2004. Six of these were of drivers, and 3 were associated with hydraulics failure during maintenance type activity.

Table 19 indicates the age distribution of victims of truck-associated injury on farms. There were no victims aged less than 30 years for this risk.

**Table 19: Deaths associated with trucks on farms – age of victim and mechanism of injury death, 2001-2004, Australia**

Mechanism of injury death	Age group of victim				
	0-9	10-14	15-29	30-54	55+
<b>Driver</b>					
Collision with other vehicle				1	
Out of truck, run over/crushed					2
Truck rolled				2	
Other					1
<b>Mechanic/driver</b>					
Hydraulics failure					3
<b>Total</b>				3	6

Source: NFIDC NCIS Database, 2007

Table 20 shows the activity being undertaken by victims of truck-associated injury death on farms. Three of the 9 deaths were associated with hydraulics failure during some type of maintenance type activity.

**Table 20: Deaths associated with trucks on farms - activity being undertaken and mechanism of injury death, 2001-2004, Australia**

Mechanism	Activity being undertaken			
	Vehicle maintenance/ tyre change	Spraying	Transporting	Unknown
<b>Driver</b>				
Collision with other vehicle			1	
Out of truck, run over/crushed	1			1
Truck rolled		1	1	
Other				1
<b>Mechanic/driver</b>				
Hydraulics failure	3			
<b>Total</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>2</b>

Source: NFIDC NCIS Database, 2007

## 5. Admissions to NSW Hospitals

Information on non-fatal injury in farmers can also be estimated from hospital inpatients statistics for NSW, where 22% of the Australian farm population reside.

For the period July 2000 to June 2007 (7 years) a total of 11,151 cases of non-intentional injury were admitted to NSW hospitals where place of occurrence of injury recorded was a farm. Of these 5,048 admissions were transport related (Table 21).

**Table 21: Number of non-intentional, non-fatal hospitalisations, by external cause of injury, occurring on a farm, NSW July 2000-June 2007**

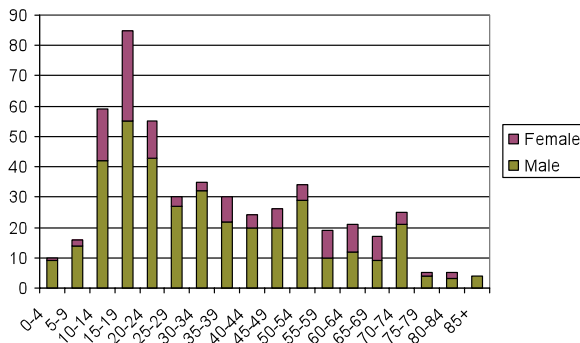
ICD Code	Reason for hospitalisation	n	%
V01-99	Transport accidents	5,048	45.3
V01-09	<i>Pedestrian injured in transport accidents</i>	97	0.9
V10-19	<i>Pedal cyclist injured in transport accident</i>	55	0.5
V20-29	<i>Motor cycle rider injured in transport accidents</i>	2,512	22.5
V30-79	<i>Motor vehicle occupant injured in transport accident</i>	500	4.5
V80	<i>Animal-rider injured in transport accident</i>	1,077	9.7
V82	<i>Occupant of streetcar injured in transport accident</i>	3	0.0
V83	<i>Occupant of special industrial vehicle</i>	8	0.1
V84	<i>Occupant of special vehicle mainly used in agriculture (tractors)</i>	348	3.1
V85	<i>Occupant of special construction vehicle</i>	7	0.1
V86	<i>Occupant of special all-terrain vehicle (ATV)</i>	368	3.3
V87-89	<i>Person injured in transport accident (collision and non collision), mode of transport unknown</i>	39	0.3
V90-97	<i>Air, space &amp; water transport accidents</i>	13	0.1
V98-99	<i>Other transport accidents</i>	21	0.2
W00-19	Falls	1,191	10.7
W20-49	Exposure to inanimate mechanical forces	2,423	21.7
W50-64	Exposure to animate mechanical forces	1,238	11.1
W55	<i>Horse or other mammal</i>	1,063	9.5
W54-64	<i>Other</i>	175	1.6
W65-Y91	All other agents	1,207	10.8
	Unknown	1	0.0
	<b>Total</b>	<b>11,151</b>	<b>100.0</b>

Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, June 2008

The information in Table 21 indicates that the main agents with associated with non-fatal transport-related on-farm injury were motorcycles (22.5%), horses (9.7%), and motor vehicles (4.5%).

## 5. Admissions to NSW Hospitals (continued)

The 10-14, 15-19 and 20-24 year old age groups were associated with the highest number of non fatal transport related on-farm injury admissions in NSW. In these age groups girls made up a greater proportion of the total than in other groups. (Figure 12).



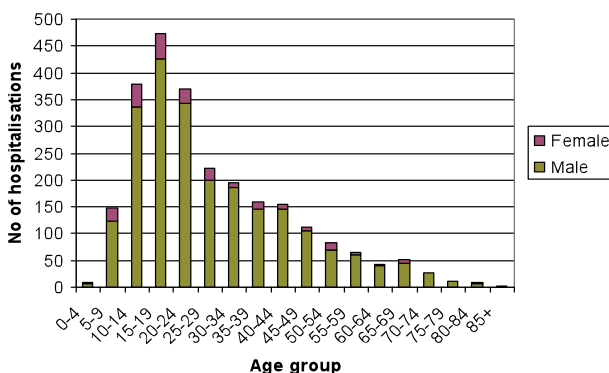
**Figure 12: Transport related\* non-fatal, non-intentional on-farm injury resulting in hospitalisation, by age group and sex, NSW July 2000-June 2007 (n=5,048)**

Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, June 2008

Note: \*Includes agricultural tractors

### Motorcycle rider injury

There were 2,512 hospitalisations of on-farm injury associated with motorcycles between July 2000-June 2007 in NSW, an average of 359 admissions per year. Of these, 44.1% (n=1,107) were aged 10-24 years of age (Figure 13).



**Figure 13: Non-fatal, non-intentional motorcycle related on-farm injury resulting in hospitalisation, by age group and sex, NSW July 2000-June 2007 (n=2,512)**

Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, June 2008



## 5. Admissions to NSW Hospitals (continued)

Table 22 shows further detail of motorcycle related injury. The majority of injuries occurred to *Drivers* of motorcycles (72.4%). Only 2.2% of passengers were injured although details of more than 15.8% of cases were unknown or not specified.

**Table 22: Number of on-farm motor cycle accidents (V20-29) resulting in hospitalisation, by driver status, NSW July 2000-June 2007 (ICD10-AM)**

Driver status	Traffic	Non traffic	Other	Total	%
Driver	42	1,777	0	1,819	72.4
Passenger	4	52	0	56	2.2
Boarding, alighting	0	239	0	239	9.5
Unknown/unspecified	151	166	81	398	15.8
<b>Total</b>	<b>197</b>	<b>2,234</b>	<b>81</b>	<b>2,512</b>	<b>100.0</b>

Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, June2008

### Motor vehicle injury

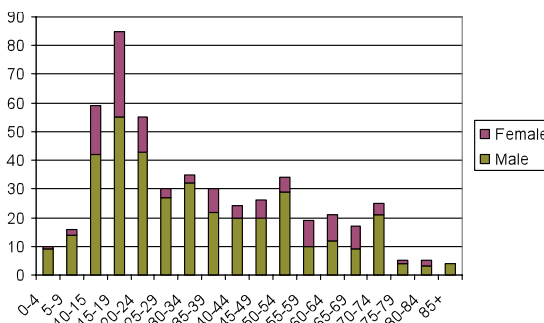
A total of 500 hospitalisations of on-farm injury were associated with motor vehicles between July 2000 and June 2007 in NSW (see Table 23). Of these, 28.0% (n=140) were aged 10-24 years of age (Figure 14).

**Table 23: Motor vehicle accidents# (V30-79) resulting in hospitalisation, by sex, NSW July 2000-June 2007\*(ICD10-AM)**

ICD code	Description	Male	Female	Total	%
V30-39	3 wheel vehicle	17	8	25	5.0
V40-49	Car	245	92	337	67.4
V50-59	Pick up truck or van	82	19	101	20.2
V60-69	Heavy transport van	32	4	36	7.2
V70-79	Bus	0	1	1	0.2
<b>Total</b>		<b>376</b>	<b>124</b>	<b>500</b>	<b>100.0</b>

Source: ABS Mortality Data (HOIST), January 2008.

Note: #Transport accidents where motor-vehicles (cars, motorcycles, quad bikess, trucks, tractors, vans, utes) are involved. \* Occupation codes 1400 and 8200



**Figure 14: Number of on-farm motor vehicle occupant accidents (V30-79) resulting in hospitalisation, by age group and sex, NSW July 2000-June 2007 (n=500) (ICD10-AM)**

Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, June2008

## 6. Fatal transport related workers compensation claims

Worker's compensation insurance claims statistics relate only to persons employed as salaried or wage earning employees. It does not include the majority of the agricultural workforce who are self-employed.

Table 24 shows the number of fatal workers' compensation claims for the period 1999/2000–2004/05. Of the total deaths (n=99) which occurred over the 6 year period, 47.5% were associated with *Mobile plant and transport*, an average of 7.8 deaths per year for this period. Further breakdown of *Mobile plant and transport* deaths shows that there were 27 *Road transport* fatal claims of which 25.5% of deaths were truck-related and 19.1% car-related (Table 25).

**Table 24: Number of fatal workers' compensation claims, by agency of injury and year, agriculture industries, Australia 1999/00-2004/05**

Breakdown Agency	1999 /00	2000 /01	2001 /02	2002 /03	2003 /04	2004 /05	Total n	%
Machinery & (mainly) fixed plant	3	0	0	2	1	0	6	6.7
Mobile plant & transport	10	10	5	9	9	4	47	47.5
Powered equipment, tools & appliances	0	1	0	0	1	2	4	4.5
Non-powered hand-tools, appliances & equipment	1	2	1	0	0	2	6	6.7
Materials & substances	0	0	2	2	1	1	6	6.7
Environmental agencies	0	1	0	1	3	1	6	6.7
Animal, human & biological agencies	1	0	1	3	1	1	7	7.8
Other & unspecified agencies	4	3	4	3	2	1	17	17.7
<b>Total</b>	<b>19</b>	<b>17</b>	<b>13</b>	<b>20</b>	<b>18</b>	<b>12</b>	<b>99</b>	<b>100.0</b>

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases Date: 16/05/2008

**Table 25: Fatal transport related workers' compensation claims by agency of injury, agriculture industries, Australia 1999/00-2004/05**

Breakdown Agency – mobile plant & transport	n	%
Road transport	27	57.4
<i>Trucks, semi-trailers, lorries</i>	12	25.5
<i>Cars, station wagons, vans, utilities</i>	9	19.1
<i>Motorcycles and sidecars, scooters, trail bikes</i>	6	12.8
Other mobile plant	13	27.7
<i>Tractors, agricultural or otherwise</i>	10	21.3
<i>Ploughs, harrows, cultivators</i>	1	2.1
<i>Trailers, caravans</i>	1	2.1
<i>Other mobile plant</i>	1	2.1
Self-propelled plant	2	4.3
Rail transport	2	4.3
Air transport	3	6.4
<b>Total</b>	<b>47</b>	<b>100.0</b>

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases Date: 16/05/2008

## 7. Non-fatal transport-related workers' compensation claims

### 7.1 Number of claims

The following data present the number of accepted non-fatal workers' compensation claims (excluding journey claims) that resulted in an absence from work of one working week or more.

Australia-wide there were 25,005 non-fatal workers' compensation claims made in the years 1999/00-2004/05 for injury to workers in the agriculture sector. Of these 1840 (7.4%) were associated with road transport vehicles (Table 26). Of these 58.73% were associated with *Motorcycles and sidecars, scooters, trail bikes* (n=1,080 claims) as shown in Table 27.

**Table 26: Number of workers' compensation claims in workers, by breakdown agency, agriculture industries, Australia 1999/00-2004/05**

Breakdown agency	Number of claims	Percent
Machinery and (mainly) fixed plant	1,585	6.3
Mobile plant and transport	3,815	15.3
<b>Road transport</b>	<b>1,840</b>	<b>7.4</b>
Other mobile plant	1,390	5.6
Self-propelled plant	340	1.4
Rail and air transport	150	0.6
Powered equipment, tools and appliances	550	2.2
Non-powered hand tools, appliances and equipment	4,320	17.3
Chemicals and chemical products	230	0.9
Materials and Substances	2,225	8.9
Environmental agencies	4,330	17.3
Animal, human and biological agencies	4,620	18.5
Other and unspecified agencies	3,200	12.8
Not stated	125	0.5
<b>Total</b>	<b>25,005</b>	<b>100.0</b>

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases Date:16/05/2008

**Table 27: Number of workers' compensation claims of workers relating to road transport vehicles by breakdown agency, agriculture industry, Australia 1999/00-2004/05**

Breakdown Agency – Road transport	Number claims	Percent
<i>Trucks, semi-trailers, lorries</i>	425	23.1
<i>Cars, station wagons, vans, utilities</i>	285	15.5
<i>Motorcycles and sidecars, scooters, trail bikes</i>	1,080	58.7
<i>Other road transport</i>	75	4.1
<b>Total</b>	<b>1,840</b>	<b>100</b>

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases Date:16/05/2008

## 7. Non-fatal transport-related workers' compensation claims (continued)

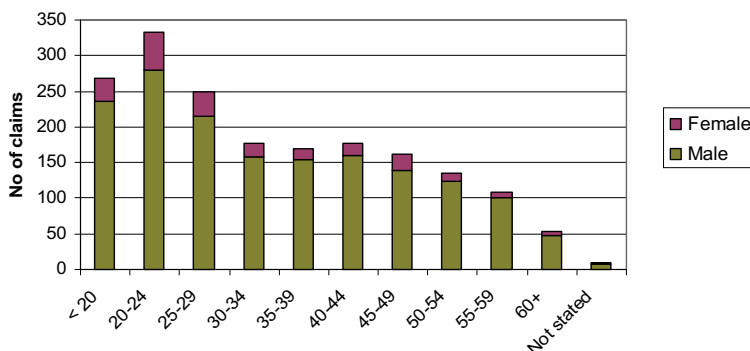
### 7.2 Age of claimants

Table 28 and Figure 15 show the age and sex of all road transport related claims submitted by workers in the agricultural industries for the period 1999/00 – 2004/05. A total of 851 (47.5%) claims were submitted by young workers aged 15-29 years of age during this period.

**Table 28: Number of road transport related non-fatal workers' compensation claims in agriculture industries, by sex and age group, Australia 1999/00-2004/05 (n=1,840)**

Age group (years)	Male	Female	Total	%
15-19	235	34	269	15.2
20-24	279	53	332	18.2
25-29	215	35	250	14.1
30-34	157	19	176	9.2
35-39	155	14	169	9.5
40-44	159	18	177	9.5
45-49	138	23	161	8.7
50-54	123	13	136	6.5
55-59	100	8	108	5.2
60+	48	5	53	2.2
Not stated	8	1	9	1.6
<b>Total</b>	<b>1,617</b>	<b>223</b>	<b>1,840</b>	<b>100.0</b>

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases Date:16/05/2008



**Figure 15: Number of road transport related non-fatal workers' compensation claims in agriculture industries, by sex and age group, Australia 1999/00-2004/05 (n=1,840)**Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases Date:16/05/2008

## 7. Non-fatal transport-related workers' compensation claims (continued)

### 7.3 Industry

Table 29 shows non-fatal road transport related workers' claims submitted by the agricultural industries and all industry. A greater proportion of road transport claims were made by workers in the *Grain, sheep and beef* industry (64.4%). Sixteen percent of road transport claims originated in the *Horticultural and fruit growing* industries.

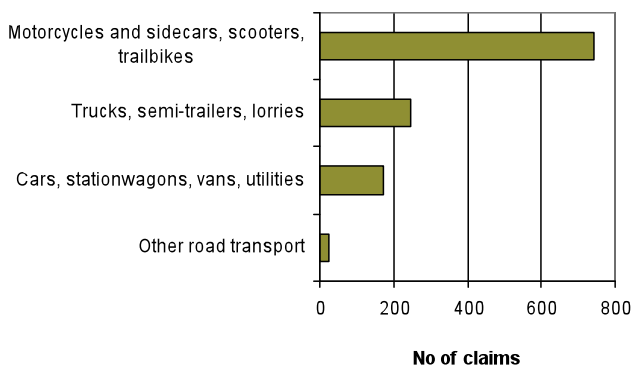
**Table 29: Non-fatal road transport-related workers' compensation claims, by agricultural industry and age group, Australia 1999/00-2004/05**

Breakdown Agency	1999 /00	2000 /01	2001 /02	2002 /03	2003 /04	2004 /05	Total n	%
Horticulture & Fruit Growing	45	55	35	50	55	50	290	15.8
Grain, Sheep & Beef								
Cattle Farming	195	205	245	240	165	135	1,185	64.4
Dairy Cattle Farming	20	35	30	30	20	30	165	9.0
Poultry Farming	np	5	5	10	5	np	30	1.6
Other Livestock Farming	20	15	10	10	10	20	85	4.6
Other Crop Growing	10	15	10	20	10	20	85	4.6
<b>All agriculture</b>	<b>295</b>	<b>330</b>	<b>340</b>	<b>360</b>	<b>265</b>	<b>250</b>	<b>1,840</b>	<b>100</b>

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases

Date: 16/05/2008 Note: np = data not available due to confidentiality restrictions

Of the claims submitted by workers in the *Grain, sheep and beef* industry, 62.6% (n=742) were associated with motorcycle related injury (Figure 16).



**Figure 16: Number of road transport claims in the *Grain, sheep and beef* industry, by agent, Australia 1999/00-2004/05 (n=1,185)**

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases

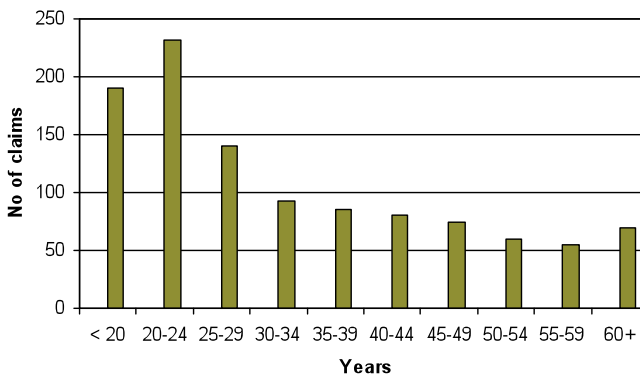
Date: 16/05/2008

## 7. Non-fatal transport-related workers' compensation claims (continued)

### 7.4 Motorcycle injury

Mobile plant and equipment non-fatal injury claims were associated primarily with *Motorcycles and sidecars, scooters, trail bikes* (n=1,080 claims) across all agricultural industries.

Figure 17 shows the age profile of workers' submitting claims associated with motorcycles. Fifty two percent of motorcycle related claims occurred to workers aged <20-29 years.



**Figure 17: Number of motorcycle/trail bike related non-fatal workers' compensation claims in agriculture industries, by age group, Australia 1999/00-2004/05 (n=1,080)**

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases  
Date: 16/05/2008



## 7. Non-fatal transport-related workers' compensation claims (continued)

Workers' compensation claim injuries associated with motorcycles were primarily to the *Shoulder* and *Knee* (Table 30) and involved fractures, sprains and strains (Table 31).

**Table 30: Motorcycle related workers' compensation claims of employees in the agricultural industries, by body part injured, Australia 1999/00-2004/05**

Bodily location of injury	No of claims	%
Trunk		
<i>Back - upper or lower</i>	60	5.6
<i>All other trunk</i>	50	4.6
Upper limbs		
<i>Hand, fingers and thumb</i>	50	4.6
<i>Shoulder</i>	170	15.7
<i>Wrist</i>	50	4.6
<i>All other upper limb</i>	50	4.6
Lower limbs		
<i>Knee</i>	140	13.0
<i>Ankle</i>	90	8.3
<i>Foot and Toes</i>	60	5.6
<i>Lower leg</i>	65	6.0
<i>All other lower limb</i>	65	6.0
Multiple locations	75	6.9
All other locations	155	14.4
<b>Total</b>	<b>1,080</b>	<b>100.0</b>

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases.: 07/05/2008

**Table 31: Motorcycle related workers' compensation claims of employees working in the agricultural industries, by nature of injury, Australia 1999/00-2004/05**

Type of injury	No of claims	%
Fractures	455	42.1
Contusion with intact skin and crushing injury excluding fracture	114	10.6
Dislocation	51	4.7
Sprains and strains of joints and adjacent muscles	313	29.0
Open wound not involving traumatic amputation	68	6.3
Other	79	7.3
<b>Total</b>	<b>1,080</b>	<b>100.0</b>

Source: The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases.: 07/04/2008



## 8. Other studies

### Farm motorcycle study

The 'Reducing the Risk of Injury Associated with Farm Motorcycles on Farms in Australia' research project (Schalk and Fragar, 1998) was initiated after the Australian Agricultural Health Unit identified farm motorcycles as a major cause of on-farm injury. Farm motorcycle rider survey forms were sent to farm families in New South Wales, Victoria and Western Australia. Farm motorcycle injury surveys were completed by injured riders in nominated New South Wales, Victorian and South Australian rural hospitals. Table 32 indicates the average reported speeds at which motorcycles (2- and 4-wheeled) were reported to be ridden on farms.

**Table 32: The average speed of farm motorcycle operation on different types of farms**  
**Percentage of riders operating at average speeds**

Farm Type	Average Speed (km/h)									
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Poultry (n=4)	50.0	-	25.0	-	-	-	-	25.0	-	-
Fruit & Vegetables (n=30)	26.7	40.0	16.7	10.0	3.3	3.3	-	-	-	-
Cereal Grains (n=17)	5.9	35.3	17.6	17.6	5.9	5.9	-	5.9	-	5.9
Sheep-Cereal Grains (n=391)	11.3	30.4	27.1	18.2	3.8	7.7	0.7	0.7	-	-
Meat Cattle-Cereal Grains (n=32)	15.6	34.4	9.4	28.1	3.1	6.3	3.1	-	-	-
Sheep-Meat Cattle (n=150)	14.0	32.0	18.0	22.0	3.3	8.7	-	1.3	0.7	-
Sheep (n=45)	17.8	37.8	20.0	11.1	6.7	-	2.2	-	4.4	-
Meat Cattle (n=72)	15.3	37.5	12.5	16.7	4.2	9.7	-	2.8	1.4	-
Dairy (n=230)	31.7	42.2	20.0	4.3	1.3	0.4	-	-	-	-
Sugar Cane (n=18)	11.1	22.2	22.2	16.7	11.1	5.5	11.1	-	-	-
Cotton (n=50)	4.0	32.0	20.0	16.0	10.0	12.0	2.0	4.0	-	-

Source: Schalk and Fragar, 1998

Table 33 indicates the maximum reported riding speeds at which motorcycles were ridden.

**Table 33: The Maximum speed of farm motorcycle operation on different types of farms.**  
**Percentage of riders operating at maximum speeds**

Farm Type	Maximum Speed (km/h)										
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	100+
Poultry (n=5)	-	20.0	20.0	-	-	20.0	-	-	20.0	20.0	-
Fruit & Vegetables (n=29)	6.9	17.2	17.2	20.7	-	24.1	3.4	6.9	-	3.4	-
Cereal Grains (n=17)	-	-	17.6	11.8	-	23.5	5.9	23.5	-	11.8	5.9
Sheep-Cereal Grains (n=403)	0.2	1.2	4.0	10.9	12.9	20.6	12.9	22.3	4.5	8.2	2.2
Meat Cattle-Cereal Grains (n=34)	-	2.9	11.8	14.7	8.8	17.6	11.8	14.7	5.9	11.8	-
Sheep-Meat Cattle (n=147)	-	4.8	6.1	11.6	11.6	20.4	8.8	19.0	4.1	6.8	6.8
Sheep (n=46)	-	13.0	13.0	21.7	8.7	10.9	4.3	6.5	2.2	13.0	6.5
Meat Cattle (n=73)	1.4	5.5	11.0	16.4	5.5	21.9	4.1	17.8	-	12.3	4.1
Dairy (n=221)	1.8	10.0	21.3	18.6	11.3	24.4	2.3	6.3	1.8	2.3	-
Sugar Cane (n=17)	-	-	17.6	5.9	11.8	23.5	5.9	11.8	-	17.6	5.9
Cotton (n=51)	-	2.0	11.8	21.6	9.8	13.7	7.8	21.6	-	7.8	3.9

Source: Schalk and Fragar, 1998



## 8. Other studies (continued)

- Over 97% of respondents indicated that they had never completed a formal rider training course, and less than half of these indicated that they would be interested in attending one.
- Wearing of personal protective clothing was poor, with over 60% of respondent/riders indicating that they never wear a helmet.
- Results confirmed poor maintenance of brakes, suspension, chain and tyres which are critical to motorcycle safety.
- Young males tended to have a higher percentage of injuries compared to any other group.
- Injuries resulting from quad bikes tended to be of a more serious nature - fractures and sprains, compared to 2-wheel motorcycle injuries - cuts and lacerations.
- ATV injured riders commonly suffered upper body injuries whereas 2-wheel motorcycle riders commonly suffered lower leg injuries.
- Riding across a paddock and hitting a stationary object were the major causes for both quad bikes and 2-wheel motorcycle accidents, although rolling the quad bike was also prominent.
- The majority of accidents occurred at speeds less than 30km/h.
- Injury to the head represented only a small fraction of the overall injuries sustained, but severe head injury accounted for nearly half of the deaths. Fatal head injuries involved skull fractures, and the majority were lacerations or bruising to the frontal sections of the brain.

## Farm adolescent and young adult study

A focus group study designed to investigate perceptions, knowledge and attitudes of young farmers aged between 15 and 24 years of age living and working on Australian farms was conducted in the North West Plains area of northern NSW. The survey involved discussions with 149 participants and covered perceptions of young people, as well as their parents and educators (Hartigan and Clarke 1994).

The research concluded that the nature of work undertaken by young people on farms was often dangerous and physically demanding and that inexperience, inadequate training, impatience and risk-taking behaviour such as speeding further increased injury risk. The major agents of injury risk were acknowledged as:

- Motorbikes and farm vehicles
- Tractors and machinery
- Augers
- Horses
- Livestock handling (cattle particularly)
- Workshop equipment.

A further key finding was that farm parents, particularly fathers, play the most important role in the safety education and work practices of young men on farms.

As a result of the studies' findings, motorbikes in particular were identified as key targets for injury prevention for this age group.

## 11. Other studies (continued)

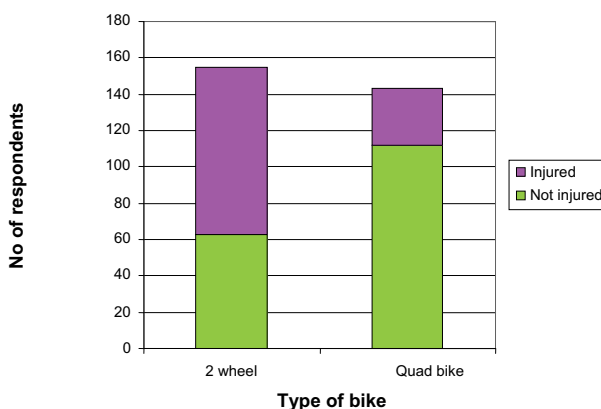
### Young Driver Studies

Research has shown that young drivers play a disproportionately large role in traffic crashes. In Australia, 16- to 24-year olds comprise about 20% of the driving population but account for around 35% of fatal and 50% of injury crashes (Catchpole et al, 1994). The young driver problem is often considered to stem from two main factors, age and inexperience (Deery and Fildes, 2003).

### Quad bike Safety and Ag College students

A survey of 6 agricultural colleges across rural Western Australia was used to investigate farm motorcycle riding practices and experience of students aged over 16 years of age (Lower et al 2005). The results found that half of respondents (n=159) had incurred an injury from riding an agricultural motorcycle and that another 23% had suffered a near miss, making 67% (218 out of 326 students) who had suffered an injury or a near miss.

A total of 74% students (n=240) had access to an agricultural motorcycle, and that on average there were 2.6 agricultural motorbikes per farm. Figure 18 shows the proportion of students suffering injury from different motorbike types.



**Figure 18: Number of agricultural students injured on agricultural motorcycles, by type of motorbike, Western Australia 2005 (n=240)**

*Source: Lower et al (2005)*

## References

1. Australian Bureau of Statistics (2006). *Agricultural Commodities, Australia, 2004-05*. Pub no 7121.0 ABS, Canberra.
2. Australian Bureau of Statistics (2007). *Agricultural Commodities, Australia, 2005-06*. Pub no 7121.0 ABS, Canberra.
3. Australian Bureau of Statistics (2008). *Labour Force, Australia, Detailed Quarterly 2006*. Pub no 6291.0.55.003, Canberra cited in Year Book 2008.
4. Australian Bureau of Statistics (2008). *Value of Principal Agricultural Commodities Produced, Australia, 2006-07*. Pub no 7501.0 ABS, Canberra.
5. Australian Bureau of Statistics (2008). *Year Book Australia 2008*. Pub no 1301.0. ABS, Canberra.
6. Australian Safety & Compensation Council (2008). *The ASCC Online Statistics Interactive National Workers' Compensation Statistics Databases Website* <http://nosi.ascsc.gov.au/>.
7. Catchpole J, Macdonald W, and Bowland I (1994). *Why are Young Drivers Over-Represented in Traffic Accidents?* Special Report No SR50 (Australian Road Research Board: Vermont South, Vic).
8. Deery H, and Fildes B (2003). Young Novice Driver Subtypes: Relationship to High-Risk Behaviour, Traffic Accident Record, and Simulator Driving Performance *J Safety Research* 34(1): 5-15.
9. Fragar L, and Pollock K (2007). *All Terrain Vehicle Safety on Australian Farms - Briefing Paper Prepared for the Farmsafe Australia Reference Group on ATV Safety*, September 2007, ACAHS, Moree, cited [www.farmsafe.org.au](http://www.farmsafe.org.au) 8/5/2008.
10. Fragar L, Pollock K, and Morton C (2007). *ATV Injury on Australian Farms – The Facts 2007. No 8 Facts and Figures on Farm Health and Safety Series*. Pub no 07-149. RIRDC, Canberra.
11. Hartigan C, and Clarke L (1994). *Farm Injury in Adolescents and Young Adults – Focus Group Report*. November 1994 ACAHS, Moree.
12. Lower T, Eggington N, Ellis I, and Larson A (2005). *Reducing All-terrain Vehicle Injuries – a randomized control study of the effect of driver training*. RIRDC, Pub no 04/174, Canberra.
13. Pollock K, Fragar L, Morton C (2007). *Traumatic Deaths in Australian Agriculture – The Facts 2007. No 11 Facts and Figures on Farm Health and Safety Series*. Pub no 07-151, RIRDC, Canberra.
14. Schalk T, Fragar LJ (1998) *Reducing risk of injury associated with farm motorcycles on farms in Australia*. Australian Centre for Agricultural Health and Safety, Moree

## Contacts

**Australian Centre for Agricultural Health & Safety**     [www.aghealth.org.au](http://www.aghealth.org.au)  
and  
**National Farm Injury Data Centre**  
University of Sydney  
PO Box 256, Moree NSW 2400  
Ph (02) 6752 8210  
Email: [aghealth@health.usyd.edu.au](mailto:aghealth@health.usyd.edu.au)

**Farmsafe Australia**     [www.farmsafe.org.au](http://www.farmsafe.org.au)  
PO Box 256, Moree NSW 2400  
Ph (02) 6752-8218  
Email: [info@farmsafe.org.au](mailto:info@farmsafe.org.au)

**NSW Farmers Association**     [www.nswfarmers.org.au](http://www.nswfarmers.org.au)  
GPO Box 1068 Sydney NSW 2000  
Ph 02 8251 1700  
Fax (02) 8251 1750  
Email: [emailus@nswfarmers.org.au](mailto:emailus@nswfarmers.org.au)

**National Farmers Federation**     [www.nff.org.au](http://www.nff.org.au)  
PO Box E10  
Kingston ACT AUSTRALIA 2604  
Phone (02) 6273 3855

**Rural Industries Research & Development Corporation**     [www.rirdc.gov.au/farmhealth](http://www.rirdc.gov.au/farmhealth)  
PO Box 4776, Kingston, ACT 2604  
Ph (02) 6272 3186 (Publications)  
Email: [rirdc@rirdc.gov.au](mailto:rirdc@rirdc.gov.au)

**MUARC (Monash University Accident Research Centre)**     [www.monash.ed.au/muarc](http://www.monash.ed.au/muarc)  
Monash University Vic 3800  
Ph (03) 9905 4371  
Fax (03) 9905 4363  
Email [enquire@muarc.monash.edu.au](mailto:enquire@muarc.monash.edu.au)



Source: G. Heath CSIRO Land and Water