



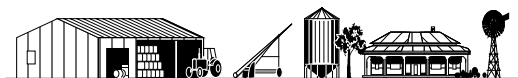
An Australian Government Initiative



Health and Safety in Older Farmers in Australia

The Facts – 2007

Facts and Figures on Farm Health and Safety Series #10



Australian Centre for Agricultural Health and Safety

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ISBN 1 74151 546 7

ISSN 1440-6845

Health and Safety of Older Farmers in Australia – The Facts

Publication No. 07/150

Project No. US-141A

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Published in November 2007

Designed by Design ONE, Hall

Printed by Union Offset, Fyshwick

Printed with vegetable based inks on stock which comprises 80% recycled fibre from post-consumer waste and 20% TCF pulp.



Foreword

Agriculture and horticultural enterprises produce commodities of more than \$30 billion value per annum on around 145,000 enterprises spread across all states of Australia.

High rates of serious injury and deaths on Australian farms are of concern to agricultural industry agencies, farmers and farm enterprises and federal and state governments.

This document has been produced to provide guidance to those agencies and individuals who are working to reduce risk associated to elderly farmers on Australian farms. It is the tenth in a series on facts and figures on farm health and safety.

This project was funded by the RIRDC managed Joint Research Venture in Farm Health and Safety which is partnered by the Grains R&D Corporation, Meat and Livestock Australia, Australian Wool Innovation, Cotton R&D Corporation, Sugar R&D Corporation and the Rural Industries Research & Development Corporation.

This report, an addition to RIRDC's diverse range of over 1600 research publications, forms part of our Joint Research Venture in Farm Health and Safety R&D program, which focuses on the adoption of improved systems for Farm Health and Safety.

Most of our publications are available for viewing, downloading or purchasing online through our website:

- downloads at www.rirdc.gov.au/fullreports/index.html
- purchases at www.rirdc.gov.au/eshop

Peter O'Brien

Managing Director

Rural Industries Research and Development Corporation

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Executive Summary

What the report is about

This report presents facts and figures on the health and safety of older farmers in Australia.

Who the report is aimed at

This report has been produced to provide guidance to those agencies and individuals who are working to reduce risk associated to elderly farmers on Australian farms. It is also targeted to educators and developers of public and industry policy to improve safety.

Background

The safety of older farmers is one of the priority programs under the Farm Injury Prevention Project, which is funded by the Australian Government of Health and Ageing. Farmsafe Australia, the national association of agencies with commitment to reducing injury risk on Australian farms, has identified the safety of older farmers as an issue requiring attention and has supported development and implementation of a national Safety of Older Farmers Strategy 2005–2007 (Farmsafe Australia, 2006).

Objectives

The objective of this report is to establish the parameters for researching enterprise OHS risk factors and personal health related to work and life in agricultural production, and to present facts and figures on the health and safety of older farmers in Australia.

Methods

Information for the document was collated by the National Farm Injury Data Centre which sources data from agencies including the Australian Bureau of Statistics (ABS), the National Coroners Information System, the NSW Health Department, the Commonwealth Department of Health and Ageing and field day surveys.

Results

The key findings are as follows:

- 38 percent of farmers/farm managers were aged over 55 and 15 percent were aged over 65 years.
- There has been a marked increase in the proportion of on-farm fatalities to older farmers over the past 15 years.
- The main agents associated with death in the over 55 year age group were tractors, ATV's and farm vehicles.
- The main causal agents of non-fatal injury to older farmers were falls, animals and motorcycles.
- A greater proportion of women aged over 55 were admitted with a fall injury.
- 21 percent of fatalities caused by traumatic injury deaths in farmers and workers aged over 55 were caused by intentional self harm.
- Two-thirds of farmers tested have a significant degree of hearing loss and nearly half have experienced noise injury.

Implications

This document will provide guidance to agencies and individuals working to reduce risk to older farmers on Australian farms. The publication is available electronically for use by educators to raise awareness and promote safety on farms, and for those whose role is the development of public and industry policy to improve safety.

Recommendations

It is recommended that this document be used to provide guidance to agencies and individuals working to reduce risk to older farmers on Australian farms.

1. Introduction

Older farmers on Australian farms are at increased risk of injury with the trend toward an ageing farm population and the natural effects of growing older such as loss of muscle strength and agility; slower reaction times; diminished eyesight; impaired balance and reduced concentration.

Farmsafe Australia, the national association of agencies with commitment to reducing injury risk on Australian farms, has identified the safety of older farmers as an issue requiring attention and has supported development and implementation of a national Safety of Older Farmers Strategy 2005–2007 (Farmsafe Australia, 2006). The safety of older farmers is one of the priority programs under the Farm Injury Prevention Project which is funded by the Australian Government of Health and Ageing. The Joint Research Venture for Farm Health and Safety focuses on the adoption of improved systems for Farm Health and Safety. It is managed by RIRDC on behalf of several R&D Corporations, including Grains Research and Development Corporation, Meat and Livestock Australia, Australian Wool Innovation, Cotton Research and Development Corporation and Sugar Research and Development Corporation.

This publication presents information collated by the National Farm Injury Data Centre which sources data from agencies including the Australian Bureau of Statistics (ABS), the National Coroners Information System, the NSW Health Department, the Commonwealth Department of Health and Ageing and field day surveys.

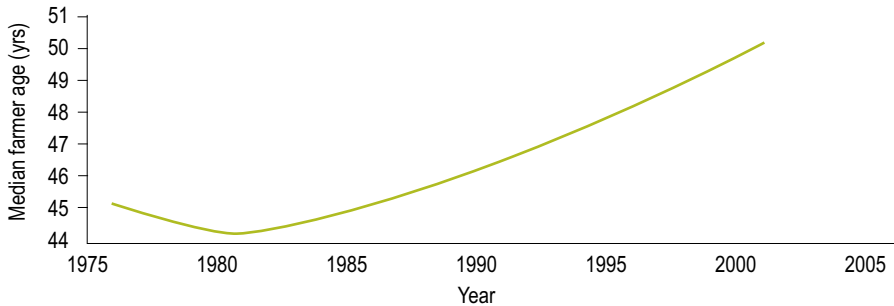
This document has been produced to provide guidance to agencies and individuals working to reduce risk to older farmers on Australian farms. The publication is available electronically for use by educators and speakers to raise awareness and promote safety on farms, and for those whose role is the development of public and industry policy to improve safety.

2. Older people at work on Australian farms

While farmers on Australian farms have often worked well beyond normal retirement age, there has also been a trend since the 1980s towards a greater proportion of older farmers working on farms and for longer (Figure 1). The total number of farmers has reduced only marginally, however farmer numbers in all age groups under 50 years have declined. Since 1976 the number of farmers aged in their 20s has declined by over 60 percent (Barr 2004).

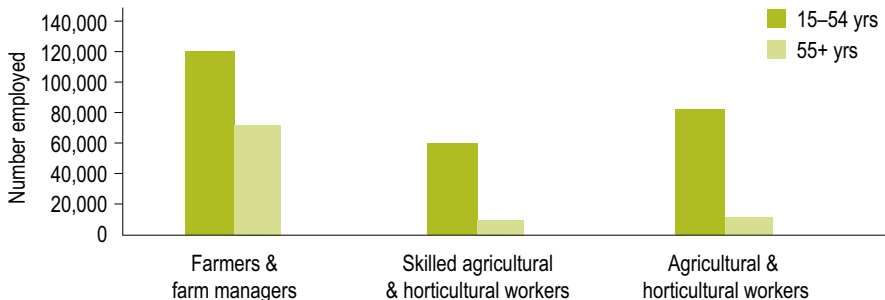
From a total of 359,702 people employed in agriculture in the 2001 Census, 94,173 (26.2 percent) were aged 55 and over. Of the farmer and farm manager component (n=194,883), 37.6 were aged over 55 yrs (Figure 2). Fifteen percent of farmers/farm managers were aged over 65 years (ABS Census 2001).

Figure 1: Median age of Australian farmers, 1976–2001



Source: Barr (2004) *The Micro-Dynamics of Change in Australian Agriculture 1976–2001*.

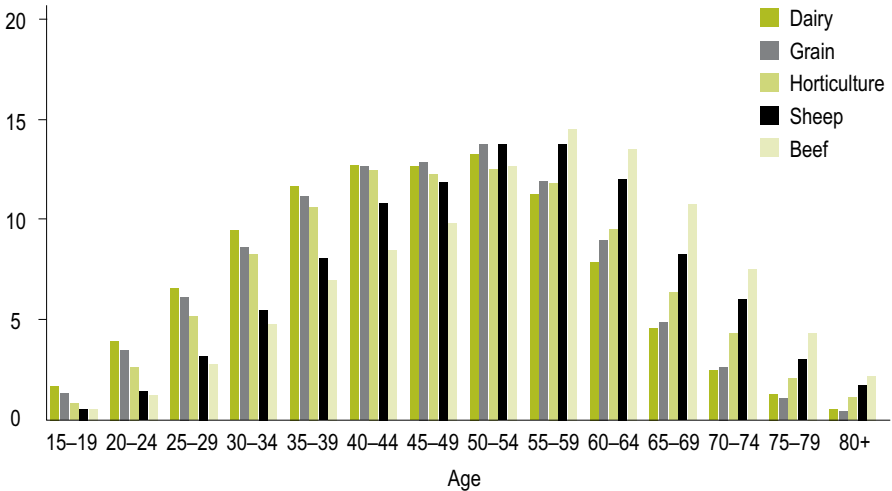
Figure 2: Number of people employed in agriculture, Australia 2001



Source: ABS Census 2001.

Figure 3 demonstrates the differences in age profiles which exist between various agricultural industries. The dairy industry has a relatively younger age profile, while the proportion of older farmers aged over 55 years is higher in the beef and sheep industries. Lower labour requirements in the beef industry may be associated with beef producers being less likely to retire than farmers in other industries (Barr, 2004).

Figure 3: Age distribution of farmers* by agricultural industry, Australia 2001



Source: Barr (2004). *The Micro-Dynamics of Change in Australian Agriculture 1976–2001*.

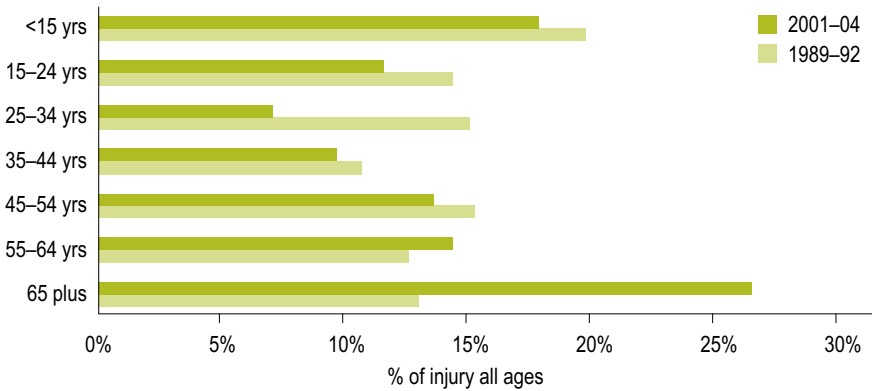
Note*: Farmer is defined as a person whose main occupation is the management of a farm.

3. Non-intentional injury deaths of older farmers and farm workers

On-farm fatalities study 2001–2004

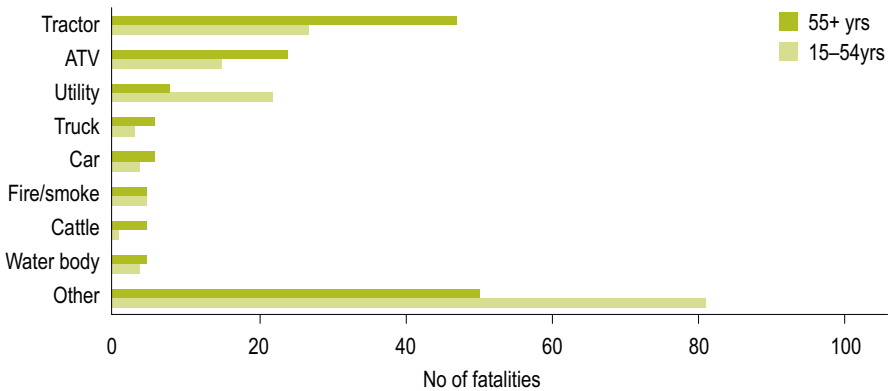
A recent study of fatalities, using data from the National Coroners Information System, has highlighted the marked increase in proportion of on-farm fatalities to older farmers over the past 15 years (Pollock et al, in press). Of a total of 384 on-farm deaths, 156 (40.6 percent) occurred in the over 55 year old age group for the period 2001–2004. In the earlier study of 1989–1992 fatalities (Franklin, 2002) this figure was 25%.

Figure 4: Percent of all fatal on-farm fatalities by age group, Australia 2001–04 (n=156) and 1989–92 (n=587)



Source: NFIDC Farm Fatalities Study (Pollock et al, in press).

Figure 5: Agent of on-farm fatality in farmers, by age group, Australia 2001–04 (55+ yrs n=156, 15–54 yrs n= 162)



Source: NFIDC Farm Fatalities Study (Pollock et al, in press).

The main agents associated with death in the over 55 year age group were tractors, ATVs and farm vehicles (Figure 5).

Seven out of the 11 cases (all ages) where the mechanism of injury was classified as a **fall** occurred in the over 55 year age group. Fall injury was associated with windmills (2), tractors (1), tank (1), sheds (1), cherry picker (1) and ladder (1).

Injury-related fatalities, all locations including farms

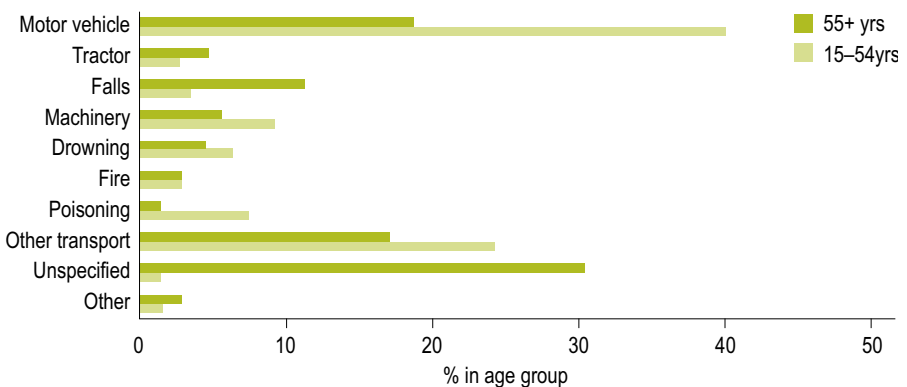
ABS mortality data separates injury-related fatalities into the occupational groups *Farmers and farm managers* (code 1400) and *Agricultural labourers* (code 8200), both of which are used in the following data. The deaths recorded below are all non-intentional injury deaths occurring to the above groups but 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.

For the period 1999–2002 a total of 820 non-intentional injury deaths occurred to farmers and farm labourers of both sexes. Fifty percent (51.3 percent) of deaths occurred in the over 55 age group. An average of 105.3 farmers and farm workers aged over 55 died due to non-intentional injury each year for this period (see Table 1).

Figure 6 compares the proportion of fatalities in older and younger farmers by agent of injury. Falls, and tractor associated deaths comprise a higher proportion of fatalities in farmers and farm workers aged over 55.

The number of deaths due to a fall in farmers and farm workers over the age of 55 were estimated to be at least 12 per year. See also Section 8 on Fall Injury.

Figure 6: Percent of non-intentional fatality in farmers and farm workers, by agent and age group, Australia 1999–2002 (n=820)



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

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

Table 1: Non-intentional fatalities of farmers and farm workers* aged over 55 years, by external cause of injury and sex, Australia 1999–2002

ICD code	Description	Male		Female		Total	
		n	%	n	%	n	%
V01–V99	Transport accidents	132	35.4	19	36.5	151	35.9
V01–09	<i>Pedestrian injured in transport accidents</i>	15	4.1	1	1.9	16	3.8
V20–29	<i>Motor cycle rider injured in transport accidents</i>	4	1.1	–	–	4	1.0
V30–69	<i>Vehicle</i>	64	16.9	15	28.8	79	18.8
V80	<i>Animal ridden</i>	3	0.8	–	–	3	0.7
V84	<i>Special vehicle mainly used in agriculture (tractors)</i>	20	5.5	–	–	20	4.8
V86	<i>Special all-terrain vehicle (ATV)</i>	11	3.0	2	3.8	13	3.1
V10–89	<i>Other land transport accidents</i>	8	0.3	–	–	8	1.9
V90–97	<i>Air, space & water transport accidents</i>	7	0.3	1	1.9	8	1.9
W00–19	Falls	44	12.2	4	7.7	48	11.4
W20–49	Exposure to inanimate mechanical forces	24	6.4	–	–	24	5.7
W20–22	<i>Struck by or against objects</i>	7	1.7	–	–	7	1.7
W23	<i>Caught, crushed, jammed, pinched in or between objects</i>	2	0.6	–	–	2	0.5
W24–29	<i>Contact with powered & non powered tools</i>	1	0.3	–	–	1	0.2
W30	<i>Contact with agricultural machinery</i>	5	1.4	–	–	5	1.2
W31–49	<i>Contact with other & unspecified machinery</i>	9	2.5	–	–	9	2.1
W50–64	Exposure to animate mechanical forces	3	0.8	–	–	3	0.7
W65–84	Accidental drowning, submersion or threats to breathing	19	5.0	–	–	19	4.5
W85–99	Exposure to electric current, radiation & external ambient air temperature	4	1.1	–	–	4	1.0
X00–X19	Exposure to fire, smoke/flames, heat	12	3.3	–	–	12	2.9
X20–29	Contact with venomous animals & plants	1	0.3	–	–	1	0.2
X30–39	Exposure to forces of nature	1	0.3	1	1.9	2	0.5
X40–49	Accidental poisoning	5	1.4	1	1.9	6	1.4
X58–59	Accidental exposure to other & unspecified factors	105	29.3	23	44.2	128	30.4
Y85–89	Sequelae of external causes of morbidity & mortality	12	3.0	1	1.9	13	2.9
	Other	7	1.7	3	5.8	10	1.6
	Total	369	100.0	52	100.0	421	100.0

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

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

When fatality rates are calculated for male farmers and farm workers (Table 2) the incidence of fatal injury appears high for older farmers and managers.

Table 2: Non-intentional fatalities of male farmers and farm workers, by age group, Australia 1999–2002 (number and fatality rate per 100,000 employed in agriculture)

	Injury deaths					
	15–54 years		55+ years		Total	
	n	Rate*	n	Rate*	n	Rate*
Farmer & farm managers	183	70.3	338	154.8	521	91.5
Farm workers	191	38.7	31	64.3	222	45.1
Total	374	46.8	369	137.7	743	69.7

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

Age standardised rate based on 2001 ABS Census Occupation figures (agriculture and horticulture).

Total males employed in agriculture aged 55 and over = 66,974 (49,611 farmers/farm managers; 17,363 farm workers).

Total males employed in agriculture aged 15–54 = 199,572 (85,802 farmers/farm managers; 113,770 farm workers).

The Australian farm fatality study by Franklin et al (2000) reported 20 deaths per 100,000 workers in agriculture for the period 1989–1992, compared to an average of 5.5 deaths per year for all Australian industries (Fragar & Franklin, 2000).



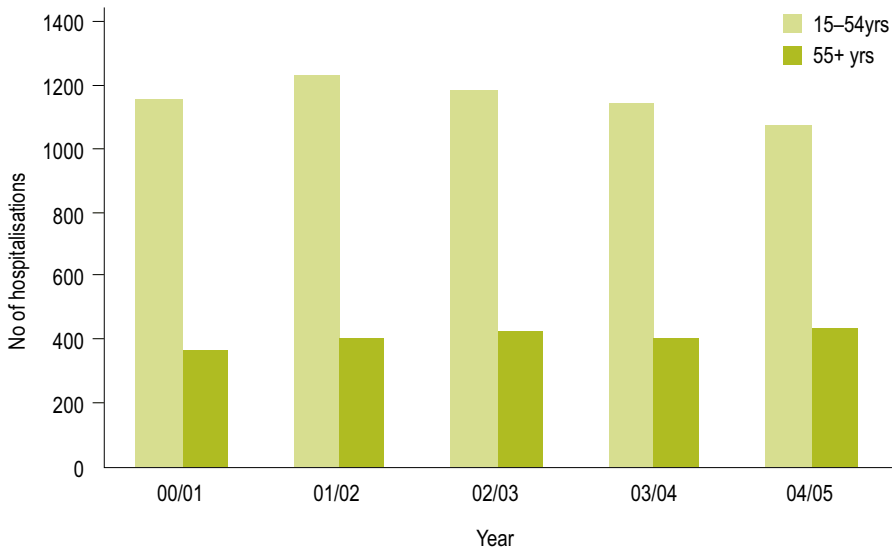
4. Non-fatal injury of older farmers and farm workers

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

Figure 7 indicates the number of non-intentional on-farm injuries hospitalised in NSW over a 5 year period from July 2000 to June 2005. Nearly 30 percent of adult admissions (aged over 15) occurred to patients aged 55 years and over. Eighty-one percent (80.6 percent) of admissions in the over 55 age group were male.

The number of injuries admitted for people aged 15–54 appear to be in decline while those to older people remain steady.

Figure 7: Non-fatal, non-intentional on-farm injury resulting in hospitalisation, by year and age group, NSW June 2000–July 2005 (n= 6,768)



Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, January 2006.

Table 3 (over page) indicates that the main causal agents of non-fatal injury to older farmers were falls, animals and motorcycles. The number of fall injury hospitalisations in the over 55 age group equaled approximately 79 per year.

Table 3: Number of non-intentional, non-fatal hospitalisations, by external cause of injury and age group, occurring on farm, NSW July 2000–June 2005

ICD code	Reason for hospitalisation	15–55 yrs		55+ yrs	
		n	%	n	%
V01–99	<i>Transport accidents</i>	2268	47.7	521	25.8
V01–09	<i>Pedestrian injured in transport accidents</i>	35	0.7	21	1.0
V20–29	<i>Motor cycle rider injured in transport accidents</i>	1243	26.2	148	7.3
V30–69	<i>Vehicle</i>	225	4.7	68	3.4
V80	<i>Animal ridden</i>	472	9.9	115	5.7
V84	<i>Special vehicle mainly used in agriculture (tractors)</i>	115	2.4	105	5.2
V86	<i>Special all-terrain vehicle (ATV)</i>	134	2.8	44	2.2
V10–89	<i>Other land transport accidents</i>	35	0.7	20	1.0
V90–97	<i>Air, space & water transport accidents</i>	9	0.2	0	0.0
W00–19	<i>Falls</i>	366	7.7	395	19.6
W20–49	<i>Exposure to inanimate mechanical forces</i>	1117	23.5	507	25.1
W20–22	<i>Struck by or against objects</i>	211	4.4	120	6.0
W23	<i>Caught, crushed, jammed, pinched in or between objects</i>	132	2.8	79	3.9
W24–29	<i>Contact with powered & non powered tools</i>	212	4.5	80	4.0
W30	<i>Contact with agricultural machinery</i>	300	6.3	142	7.0
W31–49	<i>Contact with other & unspecified machinery</i>	262	5.5	86	4.3
W50–64	<i>Exposure to animate mechanical forces</i>	437	9.2	360	17.9
W55	<i>Horse or other mammal</i>	371	7.8	316	15.7
W54–64	<i>Other</i>	66	1.4	44	2.2
W65–84	<i>Accidental drowning, submersion or threats to breathing</i>	5	0.1	2	0.1
W85–99	<i>Exposure to electric current, radiation & external ambient air temperature</i>	15	0.3	1	0.0
X00–19	<i>Exposure to fire, smoke/flames, heat</i>	63	1.3	30	1.5
X20–29	<i>Contact with venomous animals & plants</i>	104	2.2	39	1.9
X30–39	<i>Exposure to forces of nature</i>	26	0.5	1	0.0
X40–49	<i>Accidental poisoning</i>	54	1.1	12	0.6
X50–57	<i>Overexertion, travel & privation</i>	97	2.0	42	2.1
X58–59	<i>Accidental exposure to other & unspecified factors</i>	65	1.4	27	1.3

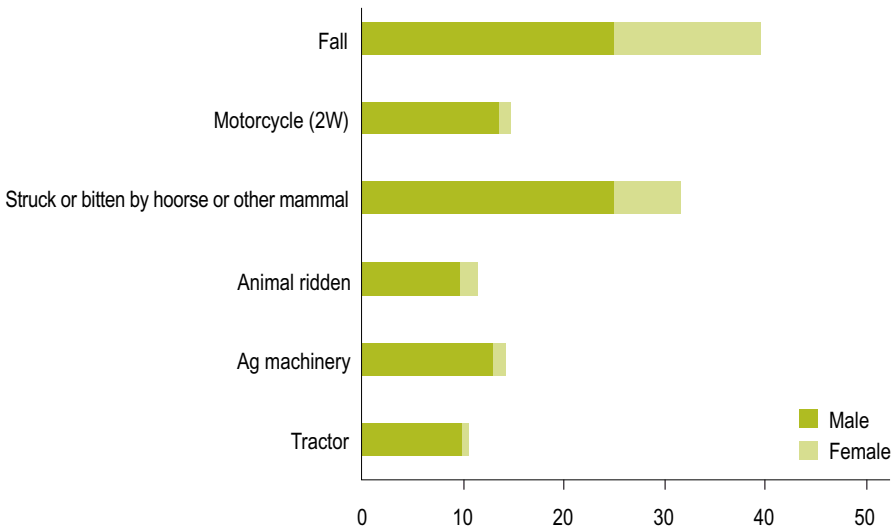
Table 3: Continued...

ICD code	Reason for hospitalisation	15–55 yrs		55+ yrs	
		n	%	n	%
Y40–59	Complications of medications/surgery	8	0.2	6	0.3
Y85–89	Sequelae of external causes of morbidity & mortality	87	1.8	47	2.3
	Other	30	0.6	5	0.2
	Unknown	10	0.2	21	1.0
	Total	4752	100	2016	100

Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, January 2006.

Figure 8 shows the number of admissions in the over 55 age group by major cause of injury and sex.

Figure 8: Non-intentional, non-fatal hospitalisations of those aged over 55, by major external cause of injury and sex, which occurred on farm, NSW July 2000–June 2005



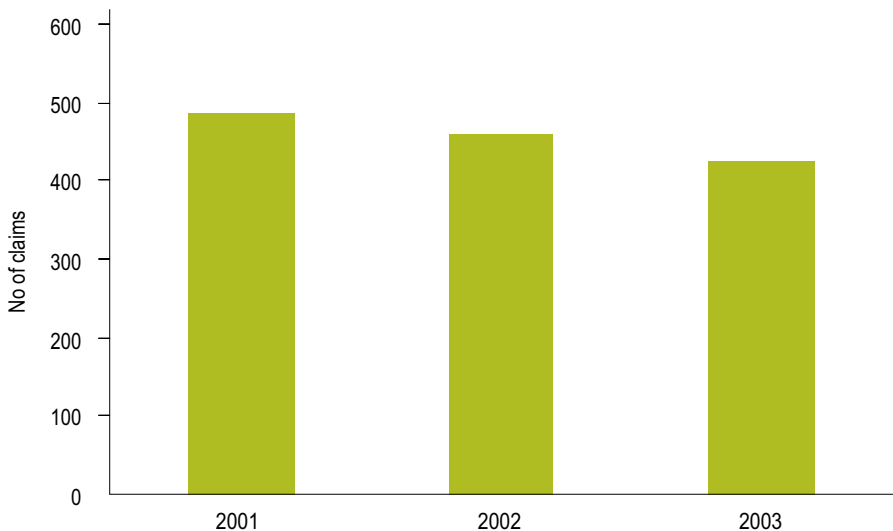
Source: NSW Inpatients Statistics Collection (HOIST) NSW Health, January 2006.

Fall-related and animal handling injuries were associated with an equal number of admissions for men aged over 55. A greater proportion of women aged over 55 were admitted with a fall injury.

5. Workers' compensation data

Australia-wide there were 1,820 workers' compensation claims made in the years 2001 to 2004 for injury to workers aged 55 and over in the agriculture sector. The number of claims per year (Figure 9) appears to be declining slightly since 2001, perhaps reflecting the industries' growing number of self-employed farmers aged over 55 years. Of these, most (40 to 50 percent) were submitted by workers in the *grain, sheep and beef* industry.

Figure 9: Number of workers' compensation claims* in people aged over 55 years, agriculture industry, Australia 2001–2003



Source: NOSI2 Databases, NOHSC website February 2006.

Note*: Duration of absence was greater than one week & excluding travel claims.

The incidence of claims made by older farmers appears lower in the grain, sheep and beef and horticultural industries.

Table 4: Incidence of workers' compensation claims*, by age group, Australia 2001–2004p#

Industry	Incidence per 1000 workers		
	<20–54	55+	Total
Horticulture & Fruit Growing	21.3	18.6	20.9
Grain, Sheep & Beef Cattle Farming	29.3	16.4	26.8
Dairy Cattle Farming	26.4	19.0	25.5
Poultry Farming	30.6	23.5	29.7
Other Livestock Farming	62.3	46.7	60.4
Other Crop Growing	36.0	45.0	36.9
All Agriculture	27.1	19.0	25.9
All industries	17.1	20.7	17.4

Source: NOSI2 Databases, NOHSC website February 2006

Note*=Duration of absence was greater than one week & excluding travel claims # p=Partial year

6. Workers' compensation claims – agent of injury

The majority of workers' compensation claims from older workers were associated with environment agencies (Table 5). *Traffic/ground surfaces* and *cattle* were the single agents associated with the highest number of claims.

Table 5: Number of workers' compensation claims* in workers aged under and over 55 years, agriculture industry, Australia 2001–2004p#

Breakdown Agency	15–54 yrs		55+yrs	
	n	%	n	%
Machinery & (mainly) fixed plant	940	6.4	147	8.2
Mobile plant & transport	2 177	14.9	262	14.5
Powered equipment, tools & appliances	329	2.3	42	2.3
Non-powered hand-tools, appliances & equipment	2 553	17.5	311	17.3
Chemicals & chemical products	139	1.0	11	0.6
Materials & substances	1 332	9.1	162	9.0
Environmental agencies	2 663	18.2	365	20.3
Animal, human & biological agencies	2 762	18.9	283	15.7
Other & unspecified agencies	1 711	11.7	218	12.1
Total	14 606	100.0	1 801	100.0

Source: NOSI2 Databases, NOHSC website February 2006 .

Note*=Duration of absence was greater than one week & excluding travel claims # p=Partial year

A more specific breakdown from the table above shows the number of claims from workers aged over 55 years associated with each leading agency.

Mobile plant and transport	Tractors	65
	Trailers	21
	Trolleys, handcarts	9
	Ploughs, harrows, cultivators	7
	Cutting, sawing machinery	28
	Conveyors, lifting plant	40
	Electrical installation	10
	Trucks	45
	Cars, utilities	17
	Motorcycles	42
Animal agencies	Horses	41
	Cattle	102
	Sheep	77
	Pigs	17
Outdoor environment	Holes in ground – outdoor	22
	Wet oily traffic area	24
	Traffic/ground surfaces, other	108
	Fencing	35
	Vegetation	69
Non-powered hand tools and equipment	Hand tools	72
	Ladders	65
	Crates boxes, drums	39
	Bags, bales, bundles	19
Powered equipment	Workshop equipment	18
	Chainsaws	10

Source: NOSI2 Databases, NOHSC website February 2006

Note*=Duration of absence was greater than one week & excluding travel claims # p=Partial year

7. Workers' compensation claims – mechanism of injury

Table 6 below indicates that the dominant mechanisms of injury for elderly farm workers for the period 2001 to 2004 (partial year) are *falls, body stressing, and being hit by moving objects*.

Table 6: Workers' compensation claims* in the agricultural industries, by age group and mechanism of injury, Australia 2001–2004^p

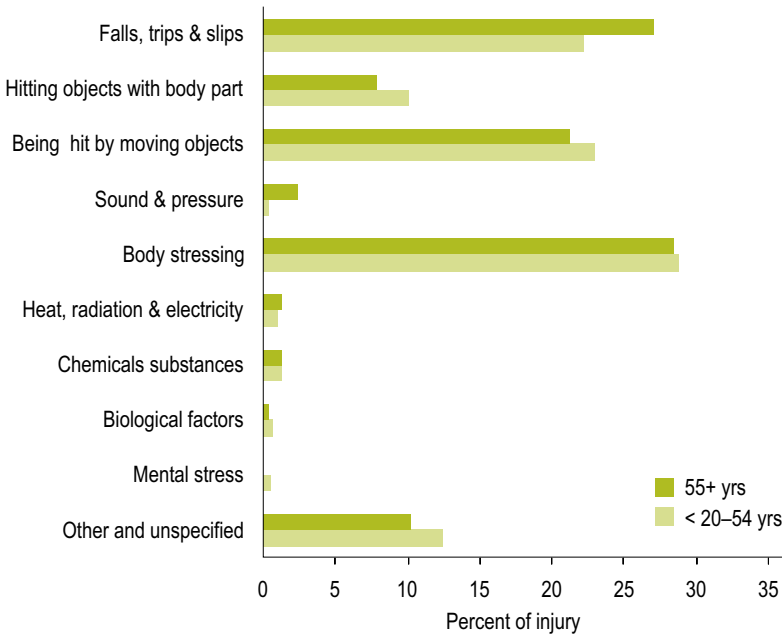
Mechanism	<20–54 yrs		55+ yrs	
	n	%	n	%
Falls, trips & slips	3,244	22.2	490	27.0
Hitting objects with body part	1,454	10.0	143	7.9
Hit by moving objects	3,357	23.0	384	21.2
Sound/ pressure	44	0.3	43	2.4
Body stressing	4,200	28.8	516	28.5
Heat, radiation, electricity	143	1.0	21	1.2
Chemicals substance	187	1.3	22	1.2
Biological factors	81	0.6	6	0.3
Mental stress	63	0.4	Np	<0.3
Other & unexplained	1,818	12.5	186	10.3
Total	14,591	100	1,813	100

Source: NOSI2 Databases, NOHSC website February 2006

Note*=Duration of absence was greater than one week & excluding travel claims # p=Partial year



Figure 10: Workers' compensation claims* in the agricultural industries, by age group and mechanism of injury, Australia 2001–2004p#



Source: NOSI2 Databases, NOHSC website February 2006.

Note*=Duration of absence was greater than one week & excluding travel claims # p=Partial year

8. Fall injury

A study of fall-related injury in Australian agriculture found that older farmers were more likely to suffer fatal and same-level fall injuries than younger age groups. As shown in the tables below, farmers and farm managers aged over 75 years were more at risk of fall injury resulting in death or hospitalisation.

The data from this study included cases where cause of death was coded as *E887 Fracture, cause unspecified*. Therefore case numbers are higher than data shown previously in Section 3, Table 1.

Table 6: Number of farmers and farm workers fatally injured by a fall, by age group and occupation, Australia 1990–2000

Age	Farmers & farm managers	Agricultural labourers & related workers	Retired farmers & farm managers	Retired agricultural labourers & related workers	Total
20–54 yrs	17	23	0	1	41
55–64 yrs	13	4	1	0	18
65–74 yrs	29	4	5	2	40
75–84 yrs	98	15	22	3	136
85+ yrs	167	10	44	5	226
Total Fracture (cause unspecified)	324 (203)	54 (20)	72 (39)	11 (5)	461 (267)

Source: Franklin et al(2004). Note: The above includes a change in coding in 1999 from ICD9 to ICD10.

Table 7: Hospitalised on-farm fall injury, by cause and age group, NSW 1989–2000 (n=1,917)

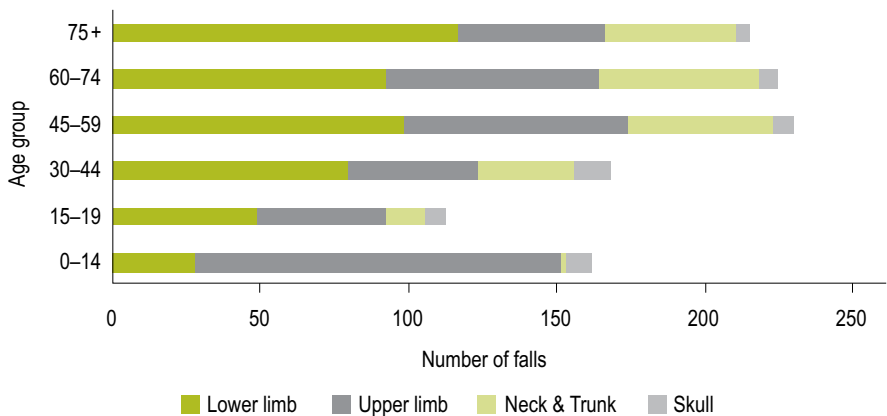
Cause	55–59	60–64	65–69	70–74	75–79	80+	Total (55+)	Total (all ages)
Falls from a height	60	53	34	33	30	28	227	935
<i>From other stairs or steps</i>	2	5	2	5	5	7	26	(51)
<i>Ladder</i>	14	5	6	5	2	3	35	(110)
<i>Scaffolding</i>	–	3	–	1	–	–	4	(8)
<i>From or out of building or other structure</i>	1	9	3	1	2	1	17	(130)
<i>Into well</i>	6	3	2	5	1	1	18	(76)
<i>Into hole or other opening in surface</i>	2	–	1	3	6	3	15	(38)
<i>Cliff</i>	2	–	–	–	–	–	2	(7)
<i>From chair or bed</i>	–	1	2	1	3	7	14	(33)
<i>Other</i>	33	27	18	12	11	6	107	(482)
Falls on same level	38	48	45	44	48	85	308	535
<i>Slipping, tripping, or stumbling</i>	37	47	45	44	47	85	305	(528)
<i>Collision, pushing, or shoving, by or with other person</i>	1	1	–	–	1	–	3	(7)
Unspecified	20	32	32	39	58	102	283	447
<i>Fracture, cause unspecified</i>	–	1	2	2	2	1	8	(22)
<i>Other and unspecified fall</i>	20	31	30	37	56	101	275	(425)
Total	118	133	111	116	136	215	829	1 917

Source: Franklin et al (2004).

Non-fatal fall injury due to slipping, tripping or stumbling was common in older people, particularly those aged over 65. Table 6 shows that in NSW, where nearly half of the fall-related admissions occurred to people aged 55 years and over, the incidence of same-level falls increase with age.

Figure 11 demonstrates that fracture injury was more common in older farmers following a fall. Fifty-two percent of fracture injuries to lower limbs, and 46 percent of all fracture injuries, occurred in the 55 years and over age group (Franklin et al 2004).

Figure 11: Fracture injury in hospitalised on-farm fall cases, by age group and body location, NSW 1989–2000 (n=1,112)



Source: Franklin et al (2004).

9. Osteoarthritis

Osteoarthritis is the leading cause of pain and disability in the elderly. It has been found to be prevalent in Australian men (10 percent) and women (20 percent) aged 45 to 65 years and more than 50 percent of people aged over 65 years (March & Bragga, 2004). People with osteoarthritis have more difficulty with daily tasks and take longer to perform activities, placing them at greater risk of injury.

Occupational overuse is a recognised risk factor for osteoarthritis, where joint trauma, mechanical stress or repetitive use may be involved. A number of international studies have shown association between hip and knee arthritis and

farming in men (Rottensten, 1997), with indications that agricultural workers working for 10 years have double the risk of osteoarthritis than those working less than a year (March & Bagga, 2004). It has been suggested that the increased risk of hip osteoarthritis in farmers may be related to tractor driving and hip joint angles (Thelin, 1990).

Vingand et al (1991) reported that male farmers had increased risk of arthritis in the knee joint. Stress on the knee such as walking on rough ground and heavy lifting of more than 25 kg has been reported to increase the risk of osteoarthritis in the knee fivefold (Croft et al, 1992).

10. Vision loss

The nature of farming means that farmers and farm workers may be at greater risk of development of various ocular disorders including cataract, pterygium, cancer of the skin around the eye, and corneal/retinal degeneration due to prolonged exposure to ultraviolet radiation. Older farmers are more likely to develop these degenerative eye diseases and suffer diminished eyesight, which may then lead to increased risk of injury. The following information about diseases of the eye has been sourced in part from the Optometrists Association of Australia (2005).

Cataracts

Cataracts are cloudy areas that form in the lens of the eye. Poor vision results because the cloudiness interferes with light entering the eye. Most cataracts are a result of ageing and long-term exposure to ultraviolet light. Some are caused by injury and certain diseases and in rare cases by exposure to toxic materials and radiation.

Pterygium

Pterygium is a growth of tissue on the white of the eye that may extend onto the clear cornea where it can block vision. It is seen most commonly in people who work outdoors in the sun and wind, and its prevalence is related to the amount of UV exposure.

Age-related macular degeneration

Age-related macular degeneration is a major cause of reduced vision in Australia for people over the age of 55. Exposure to UV and intense violet/blue visible radiation is damaging to retinal tissue in laboratory experiments, thus scientists

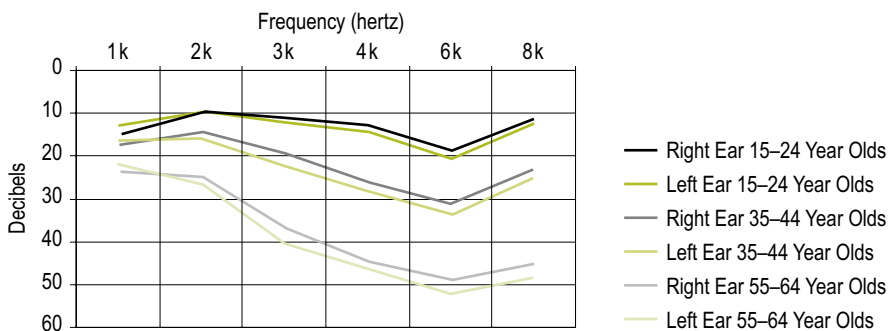
have speculated that chronic UV or violet/blue light exposure may contribute to ageing processes in the retina. For treatment of ARMD to be effective, it must be diagnosed as early as possible.

11. Hearing loss

Working with various machinery and equipment and undertaking associated activities can expose people working and living on farms to high noise levels from an early age. Noise levels on farms has been well established as posing risk of noise injury, such as hearing loss and tinnitus, in farmers and farm workers.

Hearing screening conducted at NSW field days since the 1980s have demonstrated that farmers and farm workers in NSW are suffering significant reduction in mean hearing thresholds from as early as 15 years of age. Of the 6,373 farmers and farm workers tested between 1994 and 2001, two thirds have a significant degree of hearing loss and nearly half have experienced tinnitus. Figure 12 demonstrates the dip where hearing ability declines at higher frequencies (4–6K) which is indicative of progressive exposure to excessive noise (Farmsafe 2002).

Figure 12: Mean values for hearing thresholds of farmers/farm workers aged 15–24 years (n=808), 35–44 years (n=1,376), and 55–64 years (n=1,069) at NSW field days, 1994–2001



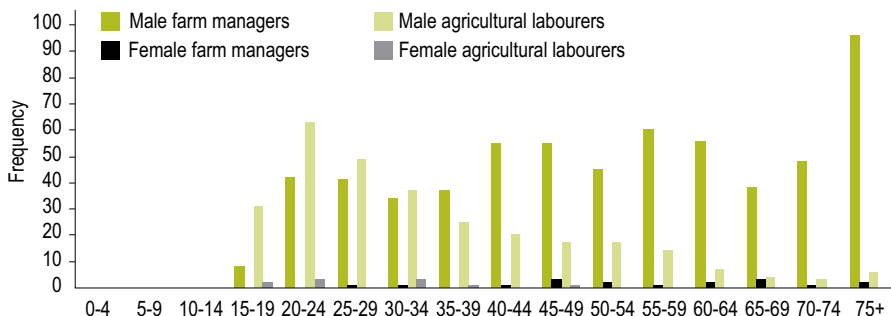
Source: Farmsafe Australia (2002).

To reduce cumulative hearing loss and tinnitus, farm managers need to ensure that workers and farm machinery operators are protected from damaging noise levels from an early age.

12. Mental stress

Suicide deaths of farm managers have been reported to be higher in older age groups, specifically those farm managers aged 55 years and over (Figure 13). Page and Fragar (2002) reported that while the rate for the working aged population has remained fairly steady for the period 1988 to 1997, the rate of suicide death has increased for male farmers and farm managers (Figure 14).

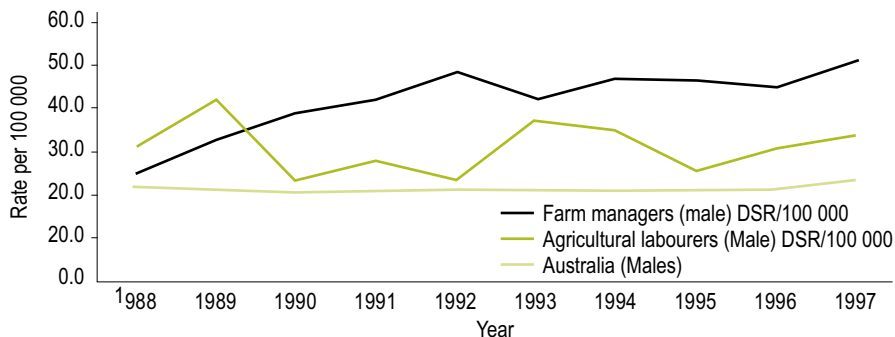
Figure 13: Number of suicides for farm manager and agricultural labourer classifications by age group and sex, Australia, 1988–97 (n=621)



Source: Page & Fragar (2002) *Suicide in Australian Farming*.

Note: 'Australian (Males)' is the age standardised rate per 100 000 provided for reference purposes (ABS, 1998).

Figure 14: Estimated direct age standardised rate (DSR)/100 000 for male farm managers and agricultural labourers, Australia 1988–1997



Source: *Suicide in Australian farming* (Page & Fragar 2002).

Note: 'Australian (Males)' is the age standardised rate per 100 000 provided for reference purposes (ABS, 1998).

ABS mortality figures for 1999 to 2002 (Table 8) indicate that of a total of 533 traumatic injury deaths in farmers and workers aged over 55 years, 21 percent of fatalities were caused by intentional self harm.

In males, the rate of intentional self harm in older farmers and farm managers appears to be higher than that for younger farmers/farm managers, and workers. Farm workers and labourers showed a higher rate of self harm in the 15 to 54 year age group.

Table 8: Intentional self harm fatalities of male farmers and farm workers, by occupation and age group, Australia 1999–2002 (number and age standardised fatality rate* per 100,000 employed in agriculture)

	Intentional self harm		Rate /100,000	
	15–54 yrs	55+ yrs	15–54 yrs	55+ yrs
Farmers & farm managers	119	109	36.7	54.4
Farm workers	97	9	20.7	17.1
Total	223	112	27.1	44.0

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

Notes: Occupation codes used include 1400 (Farmers & farm managers) and 8200 (Agricultural labourers & related workers). *Age standardised rate based on 2001 ABS Census Occupation figures (agriculture and horticulture).

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