

**Evaluation of the New South Wales
Rollover Protective Structure Rebate
Scheme 2000-2004**

June 2005

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Rebate Scheme 2000-2004

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Abbreviations

ABS	Australian Bureau of Statistics
ACAHS	Australian Centre for Agricultural Health and Safety
FOPS	Falling-Object Protective Structure
nec	Not Elsewhere Classified
NSW	New South Wales
OHS	Occupational Health and Safety
RIRDC	Rural Industries Research and Development Corporation
RMB	Roadside Mail Box
ROPS	Roll-Over Protective Structure

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Executive Summary

Title: Evaluation of the New South Wales Rollover Protective Structure Rebate Scheme 2000-2004

Authors: Franklin, RC, Stark K L, Fragar L J

ISBN:

Death from tractor rollover has been a continuing problem in Australia; however a simple but effective solution exists to prevent people from being killed when the tractor rolls over. A rollover protective structure (ROPS) is a frame fitted to a tractor to protect the operator by providing a zone of protection. The ROPS must comply with either Australian Standards AS 1636 Tractor Roll-Over Protective Structures or AS 2294 Earth-Moving Protective Structures.

In 1982, legislation was enacted in NSW requiring all tractors weighing between 560 and 15,000kg to be fitted with a ROPS that conforms to AS1636. While some farmers fitted a ROPS when the legislation first came in, many did not.

Farmsafe Australia held a national conference in 1991 specifically looking at tractor safety and then followed this with a tractor safety project examining promoting tractor safety in more detail. In 1994, as part of the project, a survey of farmers at a major agricultural field day in NSW estimated the number of tractors without a ROPS was 23,766.

Since 1990 there have been 23 tractor rollover deaths, this number however has been decreasing. There were 13 deaths between 1990 and 1994; 6 deaths between 1995 and 1999 and there 4 deaths and between 2000 and 2004.

In May 2000, the NSW State Government announced funding for a ROPS retro-fitment campaign, where the first 10,000 farmers to fit a ROPS would receive a \$200 rebate. This historic announcement followed the very successful campaign in Victoria where 12,129 ROPS had been fitted to tractors.

The objective of the ROPS rebate scheme was “to increase the proportion of tractors on farms in NSW fitted with an approved ROPS in order to reduce the number of deaths from tractor rollovers”.

The evaluation set out to answer seven questions:

1. Was the ROPS rebate scheme successful in reducing the number of tractors in NSW without a ROPS?
2. Has the number of tractors rollover deaths decreased as a result of the ROPS scheme?
3. What was the uptake of the ROPS scheme over time?
4. Did different commodities groups or regions utilise the scheme more than others?
5. Was the scheme administered effectively and did the ROPS committee work well?
6. What was the cost of the ROPS scheme?
7. If the ROPS scheme was to be undertaken again what issues should be considered?

To answer these questions a number of methods were used, these were:

- Focus groups (this information was then used to develop the survey),
- An examination of the information collected as part of the scheme,
- A survey of a sample of the people who fitted a ROPS,
- A community survey, and
- Examination of the ROPS Committee minutes.

1. Was the ROPS rebate scheme successful in reducing the number of tractors in NSW without a ROPS?

Yes, 10,449 tractors were fitted with a ROPS.

2. Has the number of tractors rollover deaths decreased as a result of the ROPS scheme?

Yes, the number of tractor deaths in the period 2000-2004 decreased to 4 deaths from 6 deaths in the previous five year period (1995-1999).

3. What was the uptake of the ROPS scheme over time?

The scheme ebbed and flowed around closing dates and the compliance program. While the closing dates may have seen a drop off in the number of ROPS rebates afterwards, the multiple closing dates may have prompted farmers to fit a ROPS as one of the barriers identified was that “they had not got round to it”.

1 Introduction

In May of 2000 the NSW State Government announced funding for ROPS retro-fitment campaign. Each farmer who fitted a ROPS during the campaign was eligible to receive a \$200 rebate. This announcement followed the very successful campaign in Victoria where 12,129 rebates were provided for ROPS on farm tractors in the 1997/ 98 financial year ¹.

The successful Victorian campaign followed three less successful rebate schemes:

- 1987 for two months (\$100 rebate – 389 ROPS fitted);
- 1990 for 10 months (\$100 rebate – 1,436 ROPS fitted); and
- 1994 for 7 months (\$120 rebate – 1,116 ROPS fitted). ¹

Farmsafe Australia have been working for many years towards ensuring all tractors in Australia are fitted with a ROPS, to this end they have undertaken two significant pieces of work. Firstly, a national conference on tractor safety in 1991, then a major project examining tractor safety in Australia ^{2 3}.

The Tractor Safety Conference in 1991 identified tractor safety problems around four issues (engineering-related problems, farmer/ consumer-related problems, information and support services, and defining the problem). At the conclusion of the conference four areas were identified where work was required:

- old tractors, ROPS and insufficient maintenance
- run-overs and access
- attitude and culture and
- definition of the problem. ⁴

The syndicate examining the problem of ‘old tractors, ROPS and insufficient maintenance’ identified the following issues:

- to their knowledge no person had died in a tractor rollover where a ROPS was fitted
- the problem was caused by complacency
- cost (ie fitting a ROPS to an old tractor is not economically viable)
- inconvenience
- legislation (ie tractors before a particular date did not need a ROPS)

- economic downturn
- geographic isolation and
- lack of policing of current legislation.⁴

The syndicate recommended the following actions:

- promotion of need for ROPS
- publicity/ education/ demonstration of ROPS and death from tractor rollover including impact on family and
- examining legislative options (including compliance).⁴

There have been a number of studies which have examined tractor deaths in Australia and world wide, including the effectiveness of ROPS⁵⁻¹⁴. While the evidence shows ROPS are effective in significantly reducing the probability of a death when the tractor rolls over, there are still large numbers of tractors without one. Davidson estimated in 1994 that there were 88,000 tractors on NSW farms and of these 23,766 did not have a ROPS³. This is despite there being legislation in NSW since 1982 requiring all tractors between 560kg and 15,000kg to be fitted with a ROPS¹⁵.

Since 2000 there have been five deaths from tractor rollovers in NSW recorded in WorkCover NSW data¹⁶. In the five years prior (1995-1999) to the introduction of the ROPS scheme there were 6 deaths and between 1990-1994 there were 13 rollover deaths^{16 17}. In the last five years there was also a death where the ROPS hit an overhead structure which fell onto the driver¹⁶. Overall there has been a downward trend in the number of deaths on NSW farms from tractors rolling over (Table 1). This information should be interpreted with caution as it may not include all tractor deaths; Franklin et al found that only 60% of farm-related fatalities in NSW were recorded in WorkCover NSW data⁶.

Table 1 Number of tractor run-over and rollover deaths in NSW between 1988 and 2004

Year	Run-over	Rollover	Total
1988	4	2	6
1989	1	1	2
1990	0	3	3
1991	8	3	11
1992	4	3	7
1993	2	2	4
1994	4	2	6
1995	1	2	3

Year	Run-over	Rollover	Total
1996	1	1	2
1997	0	1	1
1998	0	1	1
1999	2	1	3
2000	2	0	2
2001	0	1	1
2002	1	2	3
2003	0	0	0
2004	0	1	1
Total	30	26	56

Note: 1998-1995¹⁷, 1996-2004¹⁶

2 Objectives

2.1 NSW ROPS Rebate Scheme

The objective of the ROPS Rebate Scheme was to increase the proportion of tractors on farms in NSW that are fitted with an approved ROPS in order to reduce the number of deaths from tractor rollovers.

To achieve this objective the NSW government provided \$2 million in funds for 10,000 \$200 rebates to be provided to farmers who fitted a ROPS on their tractor from May 2000 until the funds were depleted. WorkCover NSW (a statutory body of the NSW government), NSW Farmers (a member organisation of farmers), Farmsafe NSW (a farm safety organisation), and Unions NSW (an employee advocacy body) formed the reference group who met on a regular basis to oversee the scheme.

A booklet was produced providing information about the scheme and the benefits of fitting a ROPS and distributed throughout NSW to machinery dealers, stock and station agents, WorkCover inspectors, and Farm Safety action groups. Throughout the project a number of advertising campaigns were undertaken via the television, radio, and local, region and state-wide newspapers (such as The Land newspaper).

The Australian Centre for Agricultural Health and Safety was the administering body for the scheme. They received and processed all of the forms, responded to any enquiries and sent out the rebate. Also during the rebate scheme WorkCover ran a number of enforcement programs where they would visit farms to see if the tractors on the farms were fitted with a ROPS.

The scheme came to a conclusion in June 2004 when 10, 449 ROPS rebates had been approved. The scheme was extended three of times (in December 2001, December 2002 and December 2003) as not all of the funds had been used at each of these stages.

2.2 NSW ROPS Rebate Scheme Evaluation

The objectives of the NSW ROPS Rebate Scheme Evaluation were:

1. To report on the uptake of the program by: month; commodity group; location; and characteristics of the tractors protected.
2. To describe the implementation and administration of the program: work undertaken by WorkCover, Farmsafe, ACAHS toward the program; and describe the work of the Steering committee (based on the minutes)
3. To assess the cost of the ROPS Scheme, including costs to the farmer (based on information provided by the farmer)
4. To describe the factors that contributed to the uptake of the program
5. To describe the factors that limited the uptake of the program

The objectives of the ROPS Evaluation were developed to answer the following questions:

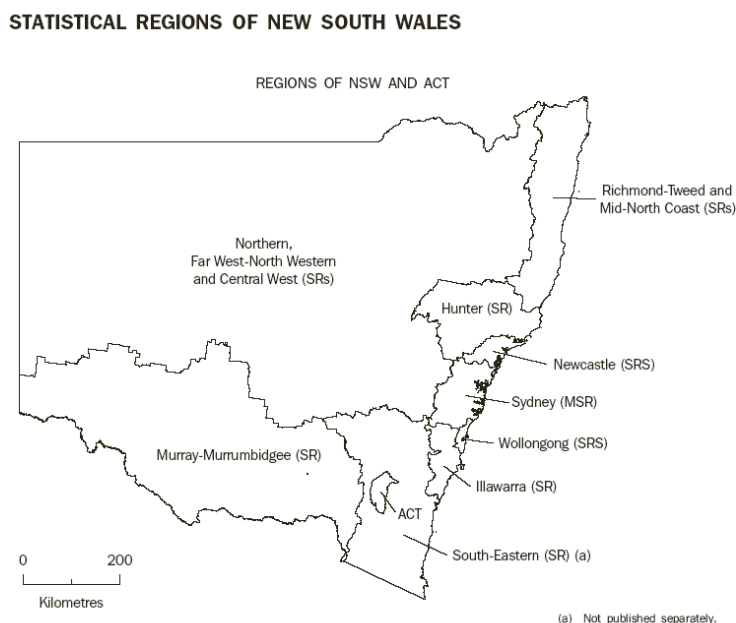
1. Was the ROPS rebate scheme successful in reducing the number of tractors in NSW without a ROPS?
2. Has the number of tractor rollover deaths decreased as a result of the ROPS scheme?
3. What was the uptake of the ROPS scheme over time?
4. Did different commodity groups or regions utilise the scheme more than others?
5. Was the scheme administered effectively and did the ROPS committee work?
6. What was the cost of the ROPS scheme?
7. If the ROPS scheme was to be undertaken again what issues should be considered?

3 Methodology

To achieve each evaluation objective a number of different methods were used, with each utilising a separate methodology.

Information relating to the ROPS scheme is presented by 14 Regions (these 14 regions represent the NSW WorkCover regions) and analysed by 12 regions (four regions were grouped into two regions due to small numbers and availability of agricultural establishments numbers – Murray & Murray LW to Murray and South Eastern & ACT were grouped to South Eastern all). The 12 Regions for analysis are; Sydney, Hunter, Illawarra, Richmond-Tweed, Mid-North, Northern, Central, Murrumbidgee, Murray (includes Murray and Murray LW), and South Eastern (includes South Eastern and ACT) Figure 1).

Figure 1 Statistical Regions of New South Wales



Source: ¹⁸

The number of agricultural establishments is based on the information from the Report by the Australian Bureau of Statistics ‘1362.1 Regional Statistics, New South Wales’ ¹⁸. Commodity information for NSW was gained from the publication ‘7121.0 Agricultural Commodities’ and is not available at region level ¹⁹.

3.1 Methodology for Focus Groups

The first step of the evaluation was to undertake focus groups across NSW to discuss the ROPS rebate scheme and why farmers have or have not fitted ROPS to all of their tractors. Four focus groups were run in NSW during the program at: Moree; Glen Innes; Goulburn; and Hay. These areas were identified by NSW Farmers as areas diverse from one another and broadly reflective of farming in NSW. The focus groups ran for approximately one hour.

A letter was sent to the local farmer group President/Chairman to ask for their group's participation (a copy of the letter was sent to the local NSW Farmers Association field officer) explaining the reasons for the focus group. Once participation had been granted and a date organised for the focus group, local farmers were recruited to participate. The focus groups were facilitated by Associate Professor Lyn Fragar and Mr Richard Franklin. The focus groups were also asked if they would commit to the conversation being recorded (there were no refusals). A recording and notes of the focus groups' discussion were taken. The information from the focus groups was summarised. Information gathered from the focus groups was used to develop the final questionnaire.

During the focus groups a number of prompting questions were used to keep the conversation on track, these prompting questions were:

- Why would a farmer fit a ROPS?
- Have you heard about the ROPS rebate scheme?
- How did you hear about the ROPS rebate scheme?
- Is \$200 enough of an incentive?
- Why are farmers not fitting a ROPS?
- Have there been any deaths in the area from tractor rollovers that you can remember?
- Did you know that under the legislation you need to have a ROPS fitted to a tractor that weighs between 560kg-15,000kg?
- How would you let people know about the ROPS scheme?
- Do you think the price of ROPS has increased because of the scheme?

The information was summarised under these questions.

During the discussion, probing was undertaken to gather further information. While there were only four focus groups undertaken the range of answers was broad with the majority of issues being raised at each forum. Some of the focus groups raised local issues.

The focus group sessions were all recorded on a Sony Walkman™ tape player and notes taken by the moderator and assistant. Each focus group session was then transcribed verbatim from the recording and supplemented with information from the notes by the moderator and assistant. The transcripts were then examined by the author line by line to identify:

- The range of feelings and opinions about ROPS, tractors and the NSW ROPS Rebate scheme (this information was used to develop the surveys that were used for both the follow-up survey and the general community survey).
- Themes and issues revealed at all or the majority of the focus group session.
- Answers to the questions:
 - Reasons for fitting a ROPS;
 - Have you heard about the ROPS scheme and how;
 - Why wouldn't a farmer fit a ROPS;
 - What would it take for a farmer to fit a ROPS;
 - Knowledge about effectiveness of a ROPS; and
 - Difficulties arising from fitting a ROPS.

Where additional information was found this has been placed in an 'other issues identified in the focus group' section.

3.2 Methodology for Delivery of ROPS Scheme

To receive the rebate, farmers were required to provide the following details:

- Name, contact details including address and phone numbers
- Information on their farming status (e.g. fulltime, hobby)
- If they were a member of NSW farmers or another association
- Their enterprise type (commodities produced)
- ROPS information: supplier, including contact details; cost of ROPS; installer, including contact details; cost of installation; brand and type; serial number; and date of installation.
- Tractor information; engine serial number; make; model; and year of manufacture.
- Scheme information: date information received and date rebate sent

This information was then analysed to provide details on the uptake of the scheme. The persons address was used to establish the Statistical Local Area (SLA) in which they lived which was then used to establish the WorkCover region.

3.3 Coding Enterprise Type

From the information provided by the farmer, enterprise was coded to the Australian New Zealand Standard Industrial Classification (ANZIC) ²⁰.

When no information was provided they were given the code 199 = “Unknown”. Where they identified as a hobby farm even when other commodities were present they were coded as 198 = “hobby farm”.

Where two or more commodities were identified but could not be matched to ANZSIC the first code was used as the classification e.g. if the commodities identified by the farmer were ‘citrus’ and ‘beef’ in that order, their farm would be coded as 199 = ‘fruit growing NEC’, if however there were three commodities identified and two of them could be coded into a group then they were used e.g. if a farmer identified the commodities ‘beef’, ‘grapes’ and ‘grains’, this would be coded as 122 = ‘Grain-Sheep and Grain-Beef Cattle Farming’. Where there were three or more that could not be coded into a group these would be coded to 197 = ‘Mixed Farming’. Where the farmers were identified as ‘mixed’ they were coded to 197 = ‘Mixed’. The use of the first commodity to code enterprise is based on the assumption that this commodity would be the larger of the two. Where somebody was using the farm for purposes other than farming this was called 197 = “Other’ e.g. tourism.

Table 2 Australian and New Zealand Standard Industrial Classification (ANZIC) for agriculture and services to agriculture.

Subdivision 01: Agriculture	
011: Horticulture and Fruit Growing	
0111	Plant Nurseries
0112	Cut Flower and Flower Seed Growing
0113	Vegetable Growing
0114	Grape Growing
0115	Apple and Pear Growing
0116	Stone Fruit Growing
0117	Kiwi Fruit Growing
0119	Fruit Growing NEC
012: Grain, Sheep and Beef Cattle Farming	
0121	Grain Growing
0122	Grain-Sheep and Grain-Beef Cattle Farming
0123	Sheep-Beef Cattle Farming
0124	Sheep Farming
0125	Beef Cattle Farming
013: Dairy Cattle Farming	
0130	Dairy Cattle Farming
014: Poultry Farming	
0141	Poultry Farming (Meat)
0142	Poultry Farming (Eggs)
015: Other Livestock Farming	
0151	Pig Farming
0152	Horse Farming
0153	Deer Farming
0159	Livestock Farming NEC
016: Other Crop Growing	
0161	Sugar Cane Growing
0162	Cotton Growing
0169	Crop and Plant Growing NEC
Subdivision 02: Services to Agriculture; Hunting and Trapping	
021: Services to Agriculture	
0211	Cotton Ginning
0212	Shearing Services
0213	Aerial Agricultural Services
0219	Services to Agriculture NEC
022: Hunting and Trapping	
0220	Hunting and Trapping

3.3 Methodology for follow-up survey of people who had fitted a ROPS

A random sample of participants based on WorkCover regions and agricultural industry groups at the 3 digit level ANZIC codes (Table 2) was selected using a 10% criterion (i.e. at least 10% of an industry group was randomly selected). Where the numbers were less than 20 all people were surveyed²⁰. The random sampling of participants occurred at two stages in the evaluation, in June 2002 and August 2004.

From the random sample 1,219 surveys were sent; 503 in June 2002 and 716 in August 2004. There were 652 (53.5%) returned questionnaires, of these one was removed because it did not have a registration number to be able to match it with a participant.

Information collected in the survey included:

- Confirmation of the farming enterprise
- Age group
- Information about the ROPS Scheme (including received rebate in 4 weeks, happiness, reason for fitting a ROPS, heard about scheme, and publicity)
- Farming experiences (including knowledge of a tractor rollover death, involvement in a rollover, risk of rollover, employees, and WorkCover visits)
- Information about the fitting of the ROPS (including time taken, if the tractor needed to leave the farm, difficulties, reasons for not fitting, and prompts to fit a ROPS)
- Information about the ROPS (including cost, finding one, changes in work practices, effectiveness, legal requirement, why some tractors are not fitted with a ROPS, and prompt to other farmers)
- Information about tractors (including number, number without a ROPS, life of new tractors, purchase of a new one, and life left in tractor with a ROPS)

Reasons for not fitting a ROPS were classified into the following categories:

- Antique / collectable
- Cabin present
- Working conditions
- Can't justify expense
- Couldn't find a ROPS
- Don't use tractor
- Haven't got around to it
- Implements attached
- Not used often enough
- Old
- Selling tractor
- Tractor not working
- Can't afford it / cost / too expensive

Prompts (reasons) for farmers to fit a ROPS were classified into the following categories:

- Able to make own ROPS
- Accident / near accident
- Availability of ROPS
- Compulsory
- Fine / Legal Action / Threat of fine
- WorkCover inspections
- Higher Rebate
- Increased awareness
- Increased workers comp if no ROPS
- Keeping rebate program
- Threat of prosecution
- Reducing problems caused by ROPS
- Safety
- Some people will never comply
- Not able to sell tractor without ROPS
- Higher rebate & possibility of fine (carrot & stick)

3.4 Methodology for survey of general farming population

A total of 12,000 questionnaires were sent out to randomly selected Road Side Mail Boxes (RMB) in New South Wales in April 2004. The locations were selected from towns within each WorkCover Region. One thousand questionnaires were distributed in each Region except for the ACT, Far West, Illawarra and Murray LW where all RMB's were surveyed. Each region's questionnaire was sent on a different colour paper so that the number returned from a region was known.

Although a mail out survey response rate is traditionally poor and was anticipated to be poor in this case, cost and ability to find farmers meant that this was the most effective method of reaching the target population. The responses were examined to see if there was a difference from the ABS information regarding the number of enterprise types (i.e. commodities) from the region selected.

Two response rates were calculated for the survey. Response rate is the number of returned surveys over the number of survey sent out. This yielded an average response rate of 4.7% ranging from 0.9 to 10.0%. An adjusted response rate was also calculated as it is known that some RMBs do not belong to farms. The adjusted response rate was calculated using the number of returned surveys over the expected number of farms (i.e. the average number of farms per centre for a region by the number of centres surveyed). The adjusted response rate yielded an average response rate of 23.2% ranging from 2.7 to 48.9% across regions. The actual response rate is likely to be higher, as not all farms have RMBs.

Information collected included:

- Tractors (including number, age, horse power, purchases choices, replacement, and factors in buying a new tractor)
- ROPS (including tractors with a ROPS, compliance plates, effectiveness, legal requirement, why not fitted, and prompts to get farmers to fit a ROPS)
- ROPS Scheme (including how heard about, fitting a ROPS using the scheme, prompts, and publicity)
- Experiences (including people injured or killed from a tractor rollover or themselves, drivers at risk, and WorkCover visit)
- Age
- Farm commodities

- Size of farm

For the questions “What would you estimate to be the working life of a new tractor?” and “How often do you buy a new tractor for your enterprise?”, those people who answered in words with no numerical value (e.g. rarely, depends, etc) were excluded. For those that put a range, the mid point was taken (e.g. 30-40 years = 35 years). Where a number with a plus was used the number was taken (e.g. 10+ = 10); and where people answered in hours, these were excluded.

3. 5 Methodology for examination of Minutes

The ROPS Committee had representation from: NSW Farmers; Farmsafe NSW; NSW WorkCover Authority; Australian Centre for Agricultural Health and Safety; Tractor and Machinery Association of Australia; and the Labour Council of NSW.

The ROPS Committee Minutes were examined for the following themes: partnerships; communication / promotion; logistics; and monitoring.

Table 3 Response rates for the return of the surveys.

Region	No. RMB	No. of Centres	No. sent	No. of returned surveys	Response Rate %	No. of farms	Av. farms per centre	No. of centres surveyed	Expected number of farms	Adjusted Response Rate %
North Western	9,483	51	1,090	109	10.0	4,286	84	5	420	25.9
Northern	13,887	72	1,100	92	8.4	6,496	90	5	451	20.4
Richmond-Tweed	21,004	87	1,105	21	1.9	3,183	37	8	293	7.2
South Eastern All	18,918	91	1,895	57	3.0	4,429	49	9	438	13.0
South Eastern	18,674	86	1,651	37	2.2			4		
ACT	244	5	244	20	8.2			5		
Sydney	16,584	62	1,110	10	0.9	1,920	31	3	93	10.8
Central West	9,195	29	1,051	84	8.0	5,542	191	5	956	8.8
Far West	288	4	288	22	7.6	286	72	4	286	7.7
Hunter	13,468	177	943	51	5.4	3,075	17	6	104	48.9
Illawarra	297	2	297	25	8.4	918	459	2	918	2.7
Mid-North Coast	16,849	74	1,009	63	6.2	3,134	42	6	254	24.8
Murray All	25,923	104	1,753	116	6.6	3,991	38	9	345	33.6
Murray	25,518	98	1,348	59	4.4			3		
Murray LW	405	6	405	57	14.1			6		
Murrumbidgee	8,449	70	1,303	129	9.9	4,692	67	4	268	48.1
Total	154,345	823	16,592	779	4.7	41,952	51	66	3,364	23.2

4 Results

4.1 Focus Group Information

The focus groups were undertaken in Moree, Glen Innes, Goulburn and Hay.

There were six areas that the focus groups examined in their discussions:

- reasons for fitting a ROPS;
- have you heard about the ROPS scheme and how;
- why wouldn't a farmer fit a ROPS;
- what would it take for a farmer to fit a ROPS;
- knowledge about effectiveness of a ROPS; and
- difficulties arising from fitting a ROPS.

There were twenty eight people who participated and group size ranged from five to twelve. People were recruited through a range of methods including through the NSW Farmers Association networks, community radio announcements, phone book searches and contacts of staff at the Australian Centre for Agricultural Health and Safety.

The examination of the information collected was grouped and direct quotes from the participants are used to highlight points raised. The primary aim of the focus groups was to gather information about the reasons why people were or were not fitting ROPS, so that this information could be incorporated into a questionnaire for evaluating the effectiveness of the ROPS rebate scheme in NSW.

4.1.1 Reasons farmers and hobby farmers would fit a ROPS

The reasons for fitting a ROPS were many and varied and ranged from more advertising to issues surrounding safety.

Many people reported that if a farmer lived on a property that had hills or river banks with steep sides then they would identify this as a potential risk and place a ROPS on a tractor. However, if they lived on flat country, then the farmer was less likely to identify tractor rollover as a risk.

It was felt that students and employees (particularly inexperienced employees) are at a greater risk of a tractor rollover due to their lack of experience, skills, and knowledge (both about

tractors and terrain). Where farms had students or employees they would be more likely to fit a ROPS, whereas sole operators were less likely to fit a ROPS (farmers considered themselves to be more skilful). This was also discussed in context of their legal responsibilities and that farmers were more likely to fit a ROPS if they had employees.

Farmers thought that the cost of the ROPS was not worth it if they were the only person at risk.

Complying with your legal responsibility was another reason farmers would fit a ROPS. This was discussed in the context that if a farmer did not comply with the legislation and there is an accident they may lose the farm and it was easier to go along with the system than fight the system. “...if you did have an accident on your farm, then WorkCover would visit and investigate and that if you didn't have a ROPS you would be fined/prosecuted...”

Liability was also discussed as a reason for fitting a ROPS and that the farmers insurance may not cover them if they had a tractor rollover or someone else had a tractor rollover and a ROPS was not fitted.

The farmer's wife was identified as a person that may encourage the farmer to fit a ROPS through gentle persuasion for his safety. It was also identified that if there was a death due to a tractor rollover where the person would have been saved by the ROPS, particularly where they knew the person, this would persuade farmers to fit a ROPS. The information about the death may be relayed to the farmer through the media or local networks. The use of the media to inform farmers about the issues and to give advice on how to resolve these issues was discussed as a means of encouraging farmers to fit a ROPS.

It was acknowledged that OHS / safety was becoming a major issue in farming “...people are becoming more aware of OHS issues...” Fitting a ROPS will save your life if the tractor did rollover was also identified as reasons to fit a ROPS. “...If you do fit a ROPS and roll it won't kill you but may squash a leg...”

The rebate was also identified as a way of helping farmers fit a ROPS. “...Farmers are used to rebates and this would be an incentive...”

4.1.1 Have you heard about the ROPS Rebate Scheme and How?

Most people at the focus groups had heard about the scheme but not all. People who had heard about the scheme had predominantly heard via NSW Farmers Association Newsletter, the Land Newspaper and television. Other means that people had heard about the scheme included agricultural field days (AgQuip and Tocal), ABC Radio, Farm Trader, Rural Lands Protection Board Newsletter, local Farm Safety Action Groups, Farmsafe NSW, Weekly Times, Rural News, Local Machinery Dealers (on bills and in person), local papers, and other farmers.

Most people thought the amount of information about the scheme had been OK, however when asked nobody could recall when the scheme started and many were unsure of when it would finish. Although each group had identified the television as a means of hearing about the scheme nobody could remember the advertisement and admitted that they used other means to gather information about farming practice.

People that focus group members thought may not have heard about the scheme included: farmers whose produce was not considered mainstream, who would be getting their information from other sources (such as commodity magazine) “...*there has been nothing in the alternative farmer magazine...*”; weekend farmers – those farmers who owned property but only visited on weekends “...*Sydney people are not reading the rural press, if anything they are looking at small farmer magazine. It is also hard to educate these farmers about their role in the community such as fire safety...*”

The other group of farmers identified as possible people who may not have fitted a ROPS were those with numeracy and literacy problems, as they may not have seen it in a the newspaper and may not be members of farmers groups. “...*What about people who cannot read or write, what are you doing to help them fit a ROPS...*”

There were several methods identified to inform farmers about the ROPS scheme: putting a message with rate notices, via commodity specific organisations (e.g. alpaca association, olive growers association), invoices from machinery dealers and stock and station agents, and hard hitting advertisements.

4.1.2 Why do you think farmers will not fit a ROPS?

There were many reasons put forward as to why farmers are not fitting ROPS. The four major suggestions were amount of use of the tractor, value of the tractor, cost of ROPS, and the farmer being a sole operator.

The amount of time during the year that a tractor is used, particularly an old tractor may be quite small and as such many farmers don't see the need to fit a ROPS, "*...A bloke that drives a tractor three or four times a year is going to say she'll be right why spend \$600...*" Many of the tractors without ROPS are used for specific jobs such as digging post holes, and have the posthole digger permanently fitted or a power source for a pump, where the tractor is moved between jobs or the tractor is used as a backup if their main tractor broke down "*...Owner of a small family farm would have a small tractor in the shed with a posthole digger attached...*",

The value of the tractor and the cost of the ROPS was another common theme in all focus groups. It was identified that tractors without ROPS were often old and not worth much money and thus to spend any money on the tractor was seen as not worthwhile. Often the cost of the ROPS was the same or of greater value than the tractor "*...ROPS may be more costly than the tractor...*" The cost of the ROPS was not seen as a huge impediment except that many said they could build one for less cost "*...People have not done it because three pieces of steel costs \$1000, but you have all the stuff on the farm and could knock it together if you were allowed to...*".

The sole operator was also identified as a person who may not fit a ROPS because they considered themselves to be skilful at their work and also know that the only person who will be injured is themselves. They are also often busy and do not have the time to know all about the legislation.

Other reasons why farmers do not fit a ROPS included: farmers being resentful of bureaucrats telling them what to do; the tractor will not fit in the shed if a ROPS is fitted; the farmer has never rolled a tractor and thinks it will not happen to him "*..never rolled one before...*"; and don't have any hills "*...the steepest part of the farm would be the levy bank...*". The last two reasons deal with risk perception (i.e. the perceived risk is minimal or nonexistent).

4.1.3 What would it take for a farmer to fit a ROPS to their tractor under the scheme?

This question was asked after the focus group participants had discussed the reason why farmers had not fitted a ROPS and they had also discussed that there were still tractors in NSW that did not have a ROPS fitted.

All groups said that more enforcement was the crucial factor for farmers to fit a ROPS. This was however countered by the need to have friendly visits allowing the farmer time to fix the problem “...friendly visit by a health and safety inspector...” “...those who have not will probably not do it until they get a visit from WorkCover...” Many identified the lack of support from WorkCover as a problem stating “... the only time you see an inspector is when something goes wrong...” “...Will come and bomb you when an accident occurs but are conspicuous by their absence when there are no accidents...”

It was identified that what was needed are people in the field who can advise the farmer about the regulations. The focus groups then went on and said that after a person had been given a warning, they should be fined “...Should give a notice and then come back and if still not done fine them the cost of the ROPS plus the fine...” It was also discussed that if random inspections were to occur there should be publicity, as word of mouth only informs some farmers “...word of mouth is only good to a certain extent, unless you put it in the paper...” It was also suggested that publicity about a farmer who had not fitted a ROPS may be useful in encouraging other farmers fit a ROPS.

Other comments included:

“...if they came with the right attitude that they were not going to prosecute and are there to help we would appreciate it...”

“...farmers are waiting to be approached but are only approached after an accident, too late, why don't they have time before the accidents...”

Although increasing the amount of the subsidy was discussed as a means of getting farmers to fit a ROPS, this was then considered unfair to those who had already fitted a ROPS and may be counter productive as farmers would keep on waiting for it to go up. “...more cash back would be unfair on those that went first...”

It was also identified that the type of advertising was important. Graphic ads, accident scenarios, cost of ROPS similar to the cost of a couple of drums of roundup and people stating that a ROPS had saved their life were all identified as ads that would grab the farmers attention. It was also stated that the amount of the fine for not fitting a ROPS should be highlighted. “...*If you think you are going to lose money you would put one on...*” “...*ROPS are not that dear, at the end of the day it is about the cost of a couple of drums of roundup...*”

4.1.4 Knowledge of the effectiveness of the Rollover Bar

All the focus groups acknowledged that a ROPS was an effective measure for preventing the death of a person driving a tractor and there was no dissenting discussion or further discussion about effectiveness.

4.1.5 Difficulties that have arisen from fitting a ROPS (Fitting and Post-fitting)

There were a few difficulties identified by focus group participants in both the fitting of the ROPS and after the ROPS had been fitted.

The majority of the complaints about the ROPS were after they had been fitted, and were about not being able to see the ROPS “...*you tend to hit things that you would not normally hit...*” Things that farmers tended to hit were trees, with slashing under trees identified as a common job undertaken by the smaller tractors “...*Problem with ROPS is the restriction it gives you on the tractor, small tractors are used for slashing under trees and some ROPS frames are tall...*” and sheds “...*now that I have put a ROPS on I can't get my tractor into the shed...*” “...*you forget that the ROPS is behind you...*”

The complaints about fitting the ROPS included that they had to remove the mud guards to fit the ROPS and this may have caused further problems such as needing to rewire lights, not being able to use the tool box, and that often the bolts on the mud guards had not been moved since the tractor was new and taking the bolts out took time. “...*It didn't fit well and I had to remove mud guards and had to cut through wiring for the lights at back of the tractors and it is now too costly to get them rewired...*”

The other complaints about fitting the ROPS were that: the rebate did not take into account the farmer's time to fit the ROPS; there were no instructions; it was not a one man job and if the

ROPS was fitted by a dealer there was an additional cost to get the tractor to town. *“...Didn’t take into account the farmer’s time to fit the ROPS and there were no instructions just a picture...”* *“...It cost \$200 each way to transport tractor to dealer to have ROPS fitted...”*

The other post fitting complaint was that there was no canopy or shade as sometimes the canopy had to be removed to fit the ROPS or to attach a canopy the farmer would need to weld something to frame which is illegal or use U-bolts which tend to come undone. *“...Can’t fit a lid to solve the UV problem...”* *“...U-bolts not good as they come loose...”*

Some solutions were proposed to the problem of not knowing the ROPS was behind the person sitting on the tractor. These included using the exhaust or extending the exhaust to the height of the ROPS; putting a whip aerial on the front of the tractor to the same height of the ROPS; or putting on a canopy. *“...I have put a whip aerial on the front of my tractor so I can see the height of the ROPS...”*

4.1.6 Other issues identified in the focus groups

There were three other issues identified during the course of the focus groups.

The selling of tractor without ROPS by dealers and at clearing sales was raised at several of the focus groups. *“...I have been to a number of clearing sales which have had tractors being sold without ROPS and maybe the agents don’t know anything about it? Or they may be turning a blind eye to it...”*

There should be a list of suppliers available so that people know where they can get a ROPS. *“...A list of suppliers and where you can get them from would be useful...”*

It was identified in one of the focus groups that there are some farmers who do not have the money to buy a ROPS and could not afford to be fined as it would put them out of business. *“...What are you doing about low income farmers that can not afford a ROPS and could not afford to be fined?...”*

4.2 Delivery of ROPS Scheme

The NSW ROPS retrofitment campaign ran from May 2000 to the end of June 2004. The initial campaign was to run from May 2000 to 31 December 2001, but was extended three times, the first from January 2002 to December 2002, the second from January 2003 to December 2003 and the last from January 2004 to June 2004. During the scheme 8,799 people fitted 10,449 ROPS receiving \$2,089,800 in rebates.

4.2.1 Fitment by Region

There were 10,449 ROPS fitted over the period of the scheme, this equated to a fitment rate of 25 ROPS per 100 agricultural establishments. The rate of fitment did vary by region from 9.1 per 100 establishments in the Far West to 59.5 in Sydney. (Table 4)

Table 4 Number of ROPS fitted by Division and Year

DIVISION	2000	2001	2002	2003	2004	Total	Number of Establishments	ROPS fitted on Tractors per 100 establishments
Central West	133	407	506	331	220	1,597	5,542	28.8
Far West	1	4	8	4	9	26	286	9.1
Hunter	67	112	106	54	66	405	3,075	13.2
Illawarra	15	46	37	27	22	147	918	16.0
Mid-North Coast	86	203	150	123	110	672	3,134	21.4
Murray All	24	237	322	221	97	901	3,991	22.6
<i>Murray</i>	21	148	140	129	80	518		
<i>Murray LW</i>	3	89	182	92	17	383		
Murrumbidgee	104	368	438	436	185	1,531	4,692	32.6
North Western	115	335	245	161	166	1,022	4,286	23.8
Northern	183	628	343	248	240	1,642	6,496	25.3
Other	0	14	12	13	8	47		
Richmond-Tweed	47	150	132	146	44	519	3,183	16.3
South Eastern All	100	265	196	131	106	798	4,429	18.0
<i>South Eastern</i>	96	255	177	123	104	755		
<i>ACT</i>	4	10	19	8	2	43		
Sydney	96	357	311	241	137	1,142	1,920	59.5
Total	971	3,126	2,806	2,136	1,410	10,449	41,952	24.9

4.2.3 Fitment by Commodity Group

There was a large variation by enterprise for the rate of ROPS on tractors per 100 establishments, ranging from 4.0 for pig farmers to 37.9 for crop and plant growing NEC Hobby farmers and

farmers that identified their enterprises as mixed farming accounted for a third (37.5%) of all ROPS fitted on tractors (Table 5).

Table 5 Number of ROPS fitted by Enterprise Type

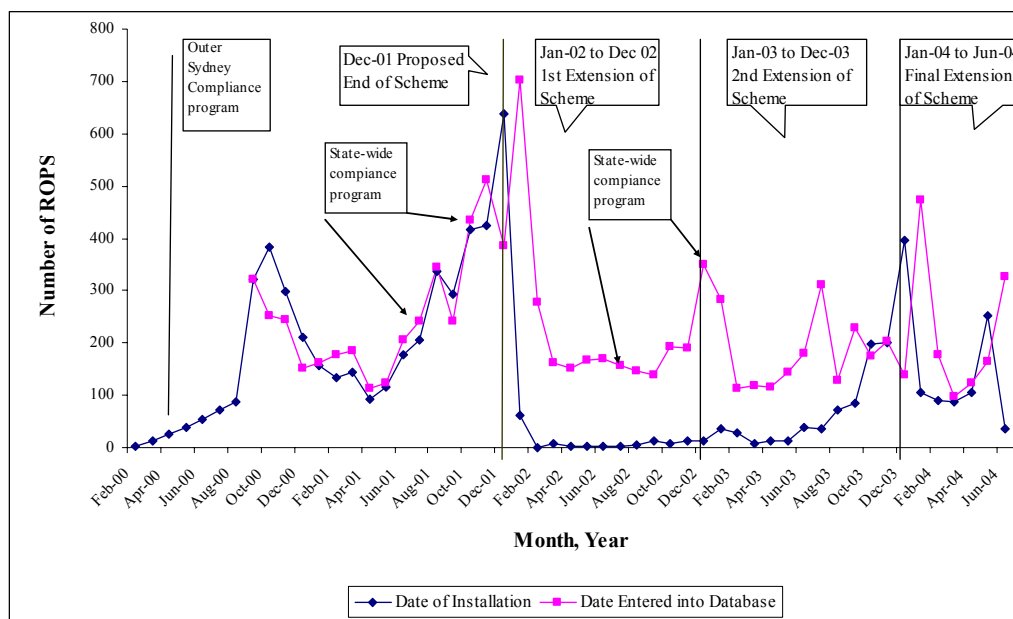
Enterprise Type	Number of ROPS	%	Number of Establishments	ROPS fitted on Tractors per 100 Establishments
Unknown	299	2.9		
Horticulture and Fruit Growing	1,822	17.4	6130	29.7
<i>Horticulture and Fruit Growing</i>	1108	10.6		
<i>Plant Nurseries</i>	124	1.2	974	12.7
<i>Cut Flower and Flower Seed Growing</i>	20	0.2	295	6.8
<i>Vegetable Growing</i>	130	1.2	986	13.2
<i>Grape Growing</i>	280	2.7	1175	23.8
<i>Apple and Pear Growing</i>	13	0.1	233	5.6
<i>Stone Fruit Growing</i>	13	0.1	465	2.8
<i>Fruit Growing NEC</i>	134	1.3	2002	6.7
Grain-Sheep and Grain-Beef Cattle Farming	1,026	9.8	7205	14.2
Grain Growing	289	2.8	4206	6.9
Sheep-Beef Cattle Farming	674	6.5	4036	16.7
Sheep Farming	356	3.4	5457	6.5
Beef Cattle Farming	1,378	13.2	10806	12.8
Dairy Cattle Farming	100	1.0	1943	5.1
Poultry Farming	93	0.9	482	19.3
<i>Poultry Farming</i>	80	0.8		
<i>Poultry Farming (Meat)</i>	11	0.1	351	3.1
<i>Poultry Farming (Eggs)</i>	2	0.0	131	1.5
Pig Farming	13	0.1	328	4.0
Horse Farming	51	0.5	770	6.6
Deer Farming	1	0.0	56	1.8
Livestock Farming NEC	63	0.6	415	15.2
Sugar Cane Growing	39	0.4	489	8.0
Cotton Growing	43	0.4	490	8.8
Crop and Plant Growing NEC	94	0.9	248	37.9
Hobby Farming	2,261	21.6		
Mixed Farming	1,660	15.9		
Shearing Services	1	0.0		
Services to Agriculture NEC	154	1.5		
Forestry	20	0.2		
Logging	2	0.0		
Services to Forestry	1	0.0		
Marine Fishing NEC	4	0.0		
Aquaculture	5	0.0		
Total	10,449	100.0		

4.2.4 Fitment over time

There were 6,577 (62.9%) people who supplied a date for when they fitted their ROPS. From the beginning of the scheme to the end of January 2002 there were 4,855 ROPS rebates provided. The ROPS Rebate Scheme was extended for 12 months, during this time there were 2,307 ROPS rebates provided (February 2002 to End January 2003). The scheme was then

extended again for 12 months and 2,351 ROPS rebates were provided (February 2003 to End January 2004). The scheme was then extended for a final six months during which 936 ROPS rebates were provided (February 2004 to July 2004). (Figure 2) The dates for when the ROPS rebate was entered into the database is more complete and should reflect fitment of ROPS and so this information was used for analysis.

Figure 2 ROPS installed and ROPS rebates entered into database by Month and Year, with identification of Key ROPS Scheme Dates



4.2.5 Full-time farmer, hobby farmer, other

The majority (69.4%) of people who fitted a ROPS were full-time farmers. This did vary by region from 37.4% in the Illawarra region to 86.9% in the Murray region (Table 6).

4.2.6 Members of Associations

There were 7,445 (71.3%) people who fitted ROPS who did not identify themselves as belonging to any association. Of the remaining 3,004 people, 2,229 (72.4%) were members of NSW Farmers, 641 (21.3%) were members of another association and 134 (4.5%) were members of NSW Farmers and another association. Common other associations identified were Victorian Farmers Federation, Rice Growers, Meat and Livestock Association, and Citrus Growers Association. There was some variation in the percentage of people who put a ROPS on their tractor and were members of a professional organisation by region (Table 7).

Table 6 ROPS fitted by region, full-time, hobby and other farmers

Region	Fulltime Farmer		Hobby Farmer		Other		Total
	No.	%	No.	%	No.	%	
Central West	1,191	74.6%	362	22.7%	65	4.1%	1,597
Far West	21	80.8%	1	3.8%	4	15.4%	26
Hunter	202	49.9%	196	48.4%	15	3.7%	405
Illawarra	55	37.4%	83	56.5%	11	7.5%	147
Mid-North Coast	305	45.4%	349	51.9%	31	4.6%	672
Murray	783	86.9%	99	11.0%	21	2.3%	901
<i>Murray</i>	439	84.7%	61	11.8%	18	3.5%	518
<i>Murray LW</i>	344	89.8%	38	9.9%	3	0.8%	383
Murrumbidgee	1,325	86.5%	175	11.4%	33	2.2%	1,531
North Western	784	76.7%	205	20.1%	41	4.0%	1,022
Northern	1,230	74.9%	360	21.9%	84	5.1%	1,642
Other	34	72.3%	11	23.4%	3	6.4%	47
Richmond-Tweed	339	65.3%	167	32.2%	19	3.7%	519
South Eastern All	466	58.4%	310	38.8%	39	4.9%	798
<i>ACT</i>	9	20.9%	31	72.1%	5	11.6%	43
<i>South Eastern</i>	457	60.5%	279	37.0%	34	4.5%	755
Sydney	520	45.5%	569	49.8%	76	6.7%	1,142
Total	7,255	69.4%	2,887	27.6%	442	4.2%	10,449

Note there were 135 people who answered yes to more than one question

Table 7 Region by members of professional associations

Region	NSW Farmers Member		Member of Other Association		Total
	No.	%	No.	%	
Central West	456	28.6	57	3.6	1,597
Far West	12	46.2	3	11.5	26
Hunter	55	13.6	23	5.7	405
Illawarra	14	9.5	15	10.2	147
Mid-North Coast	58	8.6	45	6.7	672
Murray	219	24.3	181	20.1	901
<i>Murray</i>	165	31.9	81	15.6	518
<i>Murray LW</i>	54	14.1	100	26.1	383
Murrumbidgee	396	25.9	131	8.6	1,531
North Western	350	34.2	25	2.4	1,022
Northern	467	28.4	97	5.9	1,642
Other	10	21.3	8	17.0	47
Richmond-Tweed	44	8.5	58	11.2	519
South Eastern All	162	20.3	50	6.3	798
<i>ACT</i>	3	7.0	9	20.9	43
<i>South Eastern</i>	159	21.1	41	5.4	755
Sydney	120	10.5	82	7.2	1,142
Total	2,363	22.6	775	7.4	10,449

4.2.7 Time before rebate was sent

In the data available there are two possible dates that could be used for time before rebate was sent. The first was an administrative measure: the date the information was entered into the database, which reflects most closely the time when the rebate form arrived (the day that the rebate form arrived was not collected). The second was a personal response to getting the form to the administrative centre for it to be processed, which is the date between fitment and the information being entered into database. The date of entry into the database was used for analysis. There were 10,446 ROPS rebates sent out in an average of 4.5 days (Median = 0 days range = 0-440 days). Five percent took longer than 30 days to process.

The time taken from fitment to the information being entered into the database was available for 6,469 ROPS fitments (information was either missing or the fitment date was post the date the information was entered into the database for 3,980 cases and were excluded from the analysis). The average time for the farmer to return the completed form was 60.1 days (Median = 20 days, range = 0-1311 days).

4.2.8 Tractor make

The most common make of tractor was Massey Ferguson (45.6%), followed by International (9.6%), Ford (9.3%) and Fordson (9.2%) (Table 8).

Table 8 Make of tractor on which a ROPS was fitted

Tractor Make	No.	Percentage
Case	93	0.9
Chamberlain	636	6.1
David Brown	498	4.8
Deutz	23	0.2
Fiat	647	6.2
Ford	970	9.3
Fordson	965	9.2
International	1,004	9.6
Iseki	25	0.2
John Deere	278	2.7
Kubota	208	2.0
Leyland	45	0.4
Massey Ferguson	4,761	45.6
Nuffield	156	1.5
Universal	14	0.1
Zetor	18	0.2
Other/Unknown	108	1.0
Total	10,449	100.0

4.2.9 Year Tractor was manufactured

The year the tractor was manufactured was unknown for 44.6% of the tractors fitted with ROPS. Where the age of tractor was known, the 1960's (23.6%) was the most common decade followed by 1950's (14.6%) and 1970's (12.8%) (Table 9).

Table 9 Decade tractor was manufactured by number of ROPS fitted

Decade	Number of ROPS	Percentage
Pre 1950	183	1.8
1950-1959	1,522	14.6
1960-1969	2,471	23.6
1970-1979	1,336	12.8
1980-1989	235	2.2
1990 or newer	43	0.4
Unknown	4,659	44.6
	10,449	100.0

4.2.10 Costs

The cost of the ROPS was known in 10,411 cases. The average cost was \$576.06 (range \$145.00 to \$7,397), with a total of \$6,519,406 spent on ROPS (Table 10). The cost of fitment of a ROPS was known in 1,188 ROPS fitments. The average cost of fitment was \$132.33 (range \$2 - \$3,152), total costs was \$157,203 (

Table 11). With \$2,089,800 provide in ROPS rebates, the farming community spent \$4,586,809.

Table 10 Cost of ROPS (\$)

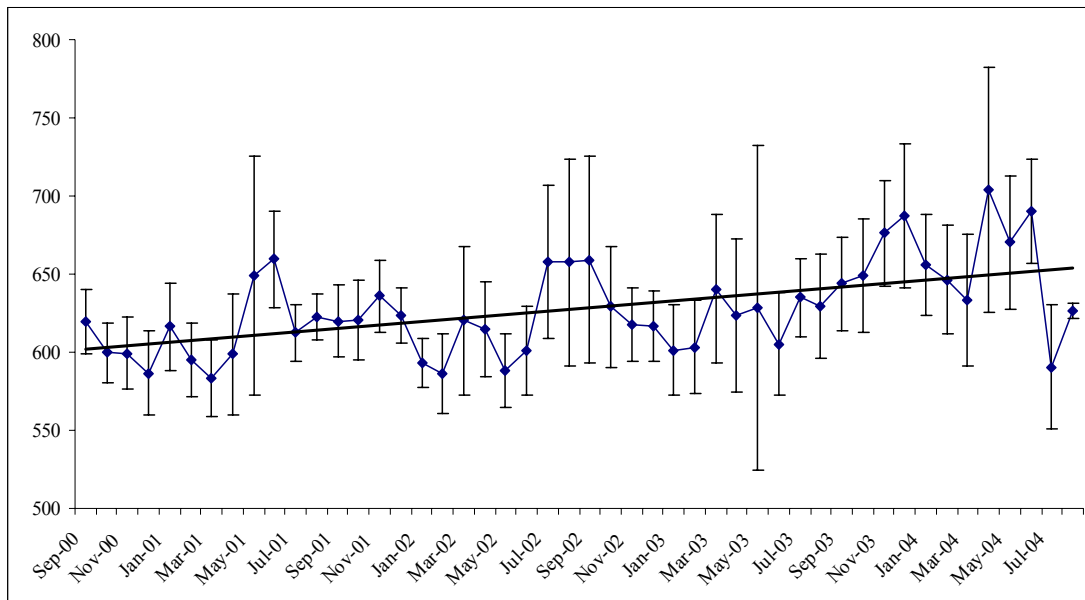
Region	N	Mean (\$)	Median	Sum	Minimum	Maximum	Std. Deviation
Central West	1,586	647.70	660	1,027,253	112	6,976	288.89
Far West	26	530.54	478	13,794	341	960	183.39
Hunter	403	607.40	555	244,784	138	1,765	189.15
Illawarra	146	605.41	544	88,390	330	1,818	200.82
Mid-North Coast	670	571.51	502	382,914	220	2,640	187.13
Murray	518	646.75	659	335,017	210	4,917	278.45
Murray LW	383	532.74	495	204,040	308	2,363	183.25
Murrumbidgee	1,529	615.72	614	941,433	100	3,746	213.15
North Western	1,020	662.10	676	675,341	225	2,650	212.52
Northern	1,633	687.12	676	1,122,060	100	5,197	289.08
Other	47	636.49	640	29,915	341	1,652	226.58
Richmond-Tweed	517	600.75	594	310,589	100	1,665	171.22
South Eastern	753	617.37	582	464,881	250	2,550	215.64
ACT	43	558.44	511	24,013	363	913	140.88
Sydney	1,137	576.06	504	654,982	145	7,397	324.46
Total	10,411	626.20	614	6,519,406	100	7,397	254.10

Table 11 Cost of fitment of ROPS (\$)

Region	N	Mean (\$)	Median	Sum	Minimum	Maximum	Std. Deviation
Central West	143	131.85	100	18,855	3	789	120.47
Far West	2	52.50	52.5	105	50	55	3.54
Hunter	26	136.23	90	3,542	3	693	138.46
Illawarra	40	137.73	110	5,509	48	638	100.22
Mid-North Coast	87	127.21	100	11,067	35	500	93.48
Murray	84	100.83	78.5	8,470	2	300	64.10
Murray LW	44	94.77	80	4,170	30	264	47.60
Murrumbidgee	139	114.64	100	15,935	3	754	92.68
North Western	102	151.56	110	15,459	30	800	129.89
Northern	207	156.45	100	32,386	3	3,152	245.59
Other	6	140.00	110	840	30	250	90.33
Richmond-Tweed	80	119.68	100	9,574	25	360	65.64
South Eastern	94	148.82	102.5	13,989	30	607	110.15
ACT	4	137.50	140	550	70	200	53.77
Sydney	130	128.86	100	16,752	25	450	70.06
Total	1,188	132.33	100	157,203	2	3,152	136.12

There was a small but significant ($F=49.1$ $P<0.0001$) increase in the cost of the ROPS being fitted over the life of the scheme (Figure 3).

Figure 3 Cost of ROPS by date entered into database.



4.3 Follow-up survey of people who fitted a ROPS

To check on the information in the database and gain a greater understanding of why people were fitting ROPS, a survey was sent out to a random sample of people in the scheme. This survey was sent out twice the first on the 22 May 2002 and the second on 22 June 2004. In total 1,219 survey was sent out and 651 (53.4%) were returned.

4.3.1 Commodity Group

To help examine the accuracy of the information collected in the ROPS database, the participants sampled were asked if the information about the commodity they produced was correct. For 587 (90.2%) this information was correct. For those that were not correct (64), 53% (34) provided updated enterprise details.

There was a mix of commodity groups sampled, with Deer Farming and Shearing Services being the only groups not sampled. The percentage of those sampled ranged from 4.2% (Grain Growing) to 100.0% (Service to Forestry) (

Table 12).

Table 12 Enterprise type by number of ROPS fitted, enterprise correct, sampled and % sampled

Enterprise Type	Number of ROPS Fitted	Farming enterprise was correct		Total Sampled	% Sampled
		Number	%		
Unknown	299	12	48.0	25	8.4
Horticulture and Fruit Growing	1,822	85	94.4	90	4.9
Horticulture and Fruit Growing	1,108	32	94.1	34	3.1
Plant Nurseries	124	9	100.0	9	7.3
Cut Flower and Flower Seed Growing	20	3	75.0	4	20.0
Vegetable Growing	130	10	90.9	11	8.5
Grape Growing	280	15	93.8	16	5.7
Apple and Pear Growing	13	1	100.0	1	7.7
Stone Fruit Growing	13	3	100.0	3	23.1
Fruit Growing NEC	134	12	100.0	12	9.0
Grain-Sheep and Grain-Beef Cattle Farming	1,026	60	95.2	63	6.1
Grain Growing	289	12	100.0	12	4.2
Sheep-Beef Cattle Farming	674	36	97.3	37	5.5
Sheep Farming	356	23	100.0	23	6.5
Beef Cattle Farming	1,378	79	87.8	90	6.5
Dairy Cattle Farming	100	11	84.6	13	13.0
Poultry Farming	93	10	90.9	11	11.8
Poultry Farming	80	8	88.9	9	11.3
Poultry Farming (Meat)	11	1	100.0	1	9.1
Poultry Farming (Eggs)	2	1	100.0	1	50.0
Pig Farming	13	2	100.0	2	15.4
Horse Farming	51	9	100.0	9	17.6
Deer Farming	1				0.0
Livestock Farming NEC	63	10	83.3	12	19.0
Sugar Cane Growing	39	8	100.0	8	20.5
Cotton Growing	43	6	85.7	7	16.3
Crop and Plant Growing NEC	94	18	94.7	19	20.2
Hobby Farming	2,261	111	90.2	123	5.4
Mixed Farming	1,660	80	92.0	87	5.2
Shearing Services	1				0.0
Services to Agriculture NEC	154	7	70.0	10	6.5
Forestry	20	2	66.7	3	15.0
Logging	2	1	100.0	1	50.0
Services to Forestry	1	1	100.0	1	100.0
Marine Fishing NEC	4	1	50.0	2	50.0
Aquaculture	5	3	100.0	3	60.0
Total	10,449	587	90.2	651	6.2

4.3.2 Division

There was a good mix of Divisions sampled, ranging from 4.2% in the Murray LW to 20.9% in the ACT (Table 13).

Table 13 Division by number sampled, ROPS fitted and percentage sampled

Division	Sampled	% of sample	ROPS Fitted	% Sampled
Central West	75	11.5	1,597	4.7
Far West	5	0.8	26	19.2
Hunter	32	4.9	405	7.9
Illawarra	14	2.2	147	9.5
Mid-North Coast	41	6.3	672	6.1
Murray All	42	6.5	901	4.7
<i>Murray</i>	26	4.0	518	5.0
<i>Murray LW</i>	16	2.5	383	4.2
Murrumbidgee	73	11.2	1,531	4.8
North Western	64	9.8	1,022	6.3
Northern	113	17.4	1,642	6.9
Other	5	0.8	47	10.6
Richmond-Tweed	45	6.9	519	8.7
South Eastern All	68	10.4	798	8.5
<i>South Eastern</i>	59	9.1	755	7.8
<i>ACT</i>	9	1.4	43	20.9
Sydney	74	11.4	1,142	6.5
Total	651	100.0	10,449	6.2

4.3.3 ROPS Scheme

Overall 88.8% of people surveyed said they received their cheque within four weeks of submitting the forms. The majority of people were happy with the scheme, however those who did not receive the cheque within four weeks were significantly ($P < 0.0001$) more likely to be unhappy with the program. It should be noted that in some of these cases the farmer may have been required to provide more information to complete the application.

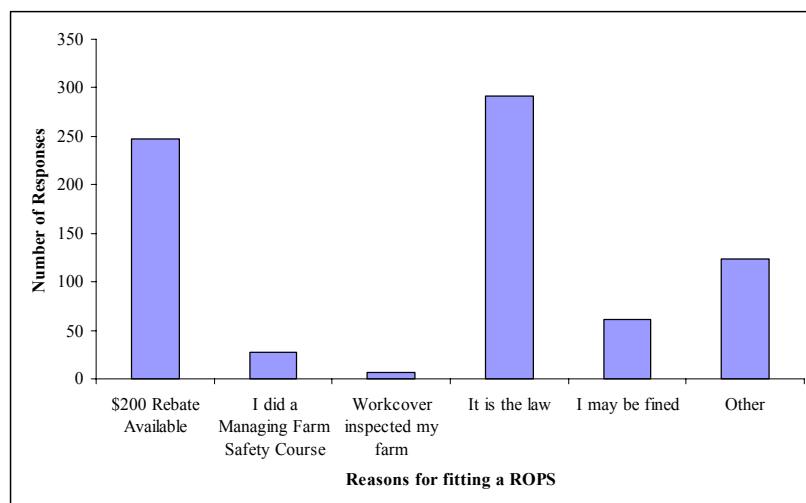
Table 14 Received rebate within four weeks by happy with program

Did you receive your rebate within four weeks?	Where you happy with the program?		
	No	Yes	Total
No	17	56	73
Yes	43	535	578
Total	60	591	651

Of the 60 people who were unhappy with the program, 24 gave a reason. The most common reasons were the cost of the ROPS (i.e. the rebate did not cover enough of the cost), working conditions (i.e. working on flat land, working in areas where ROPS did not fit), and administration (this mainly related to problems with processing and paperwork). Other reasons for being unhappy included freedom of choice, price of ROPS increasing due to program, a long time from purchasing the tractor to having to fit a ROPS.

As part of the survey people who fitted a ROPS were asked what prompted them to fit a ROPS. While the question asked them to select one response, 106 people selected more than one. The two most common reasons were that it is the law followed by the \$200 rebate. In the other category, safety (69.4%) was the most common reason for fitting a ROPS. It is interesting to note that while many people put the ROPS on for safety reasons, the rebate provided the impetus for them to do so. (Figure 4) A third of people surveyed said they would not have fitted a ROPS if there was no rebate.

Figure 4 Reason for fitting a ROPS



The people surveyed who fitted a ROPS were asked where they heard about the scheme. Just over a third (38.6%) identified hearing about it in ‘The Land’ newspaper, while 18.0% heard about it from a farming organisation, and 17.4% heard about it from the local news paper. Television (16.0%), dealer (14.4%), and radio (11.8%) were other common methods people heard about the scheme. (Table 15)

The majority (487, 74.8%) of people surveyed thought there was enough publicity. People who heard about the scheme through all mechanisms, except magazine or field days, were statistically significantly more likely to have thought that the scheme had enough publicity. (Table 15)

Table 15 Enough publicity by how people heard about the scheme

How Heard About Scheme	Enough Publicity		Heard about Scheme Total	P
	Yes	No		
Local Newspaper	100	13	113	<0.001
The Land	211	40	251	<0.001
Other Newspaper	21	0	21	<0.01
Television	91	13	104	<0.01
Radio	70	7	77	<0.001
Magazine	19	2	21	=0.0927
Field Day	50	11	61	=0.176
Farming Organisation	99	18	117	<0.001
Other	79	77	156	<0.0001

4.3.4 Farmers perceptions of ROPS

As part of the survey, people who had fitted a ROPS were asked a number of questions about their perceptions of ROPS and its fitment. The people who fitted the ROPS were asked if they thought the cost of the ROPS was “cheap”, “just right” or “too expensive”. Most thought it was just right (43.9%) or too expensive (41.6%).

The majority (82.6%) of people who fitted a ROPS said it was easy to find one for their tractor. The time taken to fit a ROPS ranged from half an hour to 96 hours (avg 3.7 hours). Only a small number of people surveyed (11.5%) needed to take the tractor off the farm to fit the ROPS. One-fifth (21.4%) of all people said they had difficulties fitting the ROPS. There were seven major categories of difficulties encountered and reported in the survey (n=138): having to make modification/s (29.7%), removing existing tractor components (25.5%), alignment of holes for fitments (15.9%), fitting the ROPS (15.2%), acquiring the ROPS (5.8%), poor quality of ROPS (5.1%) and poor fitment instructions (2.9%).

Most people (81.6%) did not identify fitting a ROPS as changing the way they worked. Changes to the way people work were predominantly about working in areas where the ROPS was too high (62.5%) (e.g. under trees), and being more aware of safety on their farms (16.7%). One-fifth (20.1%) of people who fitted a ROPS said that they were unable to fit the tractor in the shed. There were 129 people who identified six categories of other problems caused by the

ROPS, mainly (62.2%) related to getting access under things. The other categories were operational problems with the tractor (15.5%), having to modify the tractors (10.9%), reduced visibility (7.0%), hitting the ROPS with their body (4.7%) and in one case the ROPS falling on the person.

The majority (77.0%) of people thought their new ROPS was effective.

2.1.1.1.4.3.5 Experience

Of the people surveyed who fitted a ROPS, 22.9% said that they knew of a farmer in their area who had died or been seriously injured from a tractor rollover and 17.1% said they had been involved in a tractor rollover or where the tractor had nearly rolled over.

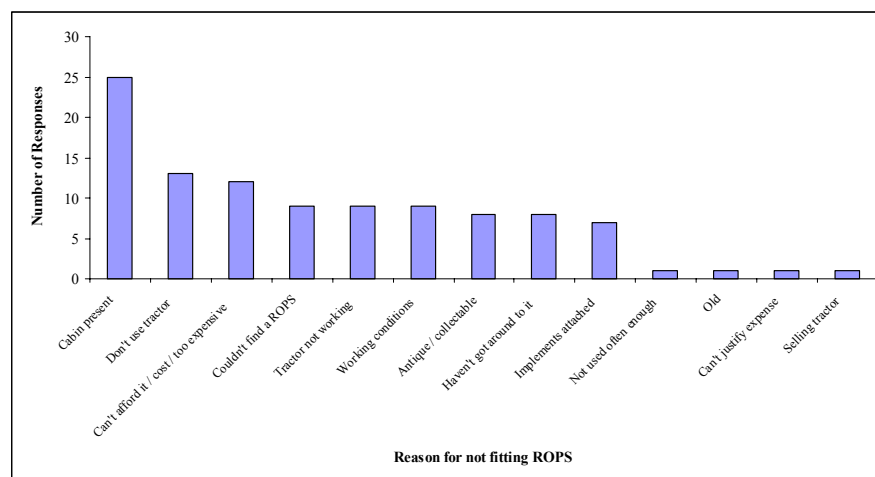
Of the farmers surveyed 278 (42.7%) felt they were not at risk of a tractor rollover, of whom 222 (79.9%) provided a reason why they were not at risk. The most common reasons were: their farm or where they worked was flat (46.4%); awareness of safety / careful / had common sense (26.1%); and they had a lot of experience so were not at risk (13.5%). Other reasons provided were categorised as follows: carried out risk assessments (2.7%), no known rollover in the area (0.9%), type of jobs being undertaken (5.9%), rollovers are rare or extreme events (1.4%), they have a ROPS or cabin on the tractor (1.8%). One person said they were not at risk because of training. Another said they were not at risk because they can jump from the tractor while it is rolling and another said they only used their tractor at low speeds.

The majority of farmers knew a ROPS was a legal requirement before the rebate was introduced (62.8%). Approximately a third (30.7%) of farms had employees. There were only 40 (6.1%) respondents who had had a WorkCover inspector on their farm.

2.1.1.2.4.3.6 Tractor

There were 600 farmers who provided information on the number of tractors on their farm. Overall there was 2.9 tractors per farm (n=1,744 tractors, range 1 to 40 per farm). Less than half of the farmers (41.3%) had a tractor without a ROPS. There were 531 (30.4%) tractors identified as not having a ROPS. Only 104 respondents gave a reason why they had not fitted their tractor with a ROPS, the most common answer being “a cabin was present” (24.0%), followed by the “don’t use tractor” (12.5%) and “can’t afford it / cost / too expensive” (11.5%) (Figure 5).

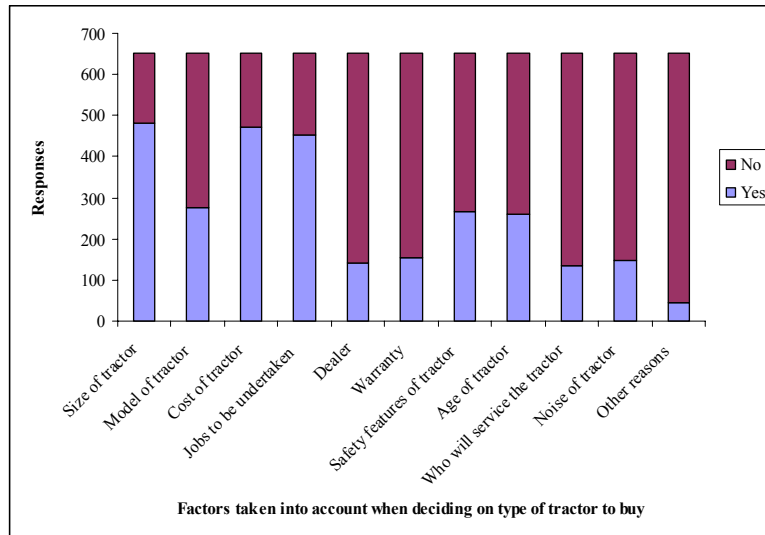
Figure 5 Reason for not fitting a ROPS



The life of a new tractor was not well answered, with only 464 respondents giving a valid answer. Overall the average estimated life of a new tractor was 24.8 years, ranging from 5 to 100 years. There were only 422 people who provided an answer to how often they buy a tractor, partly due to many people only ever buying one tractor and keeping it for their whole farming life. On average, every 14.3 years a tractor was bought for the farm, ranging from 2 to 50 years. Of the 472 who responded to the question of estimating the life left in the tractor they had fitted with a ROPS, the average was 14.2 years (range 1-100 years). Reasons for buying a new tractor included: financial; improvements in tractor technology; and when the current tractor could no longer be fixed or became too costly to fix.

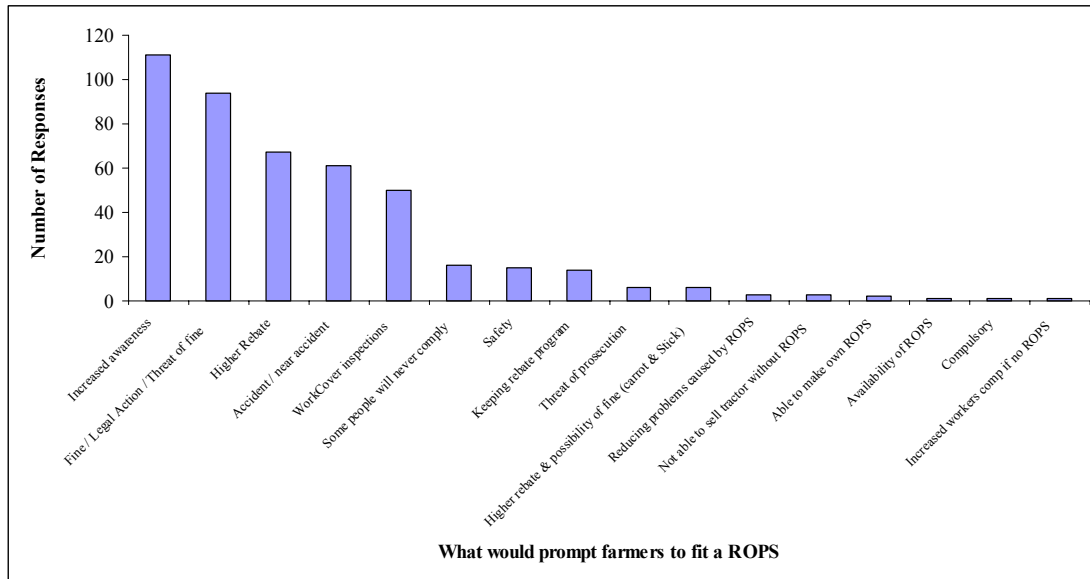
Common factors taken into account when deciding on the type of tractor to buy included size; cost of the tractor; and jobs to be undertaken (Figure 6). There were 64 people who provided other reasons: proven reliability; condition; design; comfort; availability of parts; resale value; accessibility; fuel consumption; tyre condition; and weight.

Figure 6 Factors taken into account when deciding on the type of tractor to buy



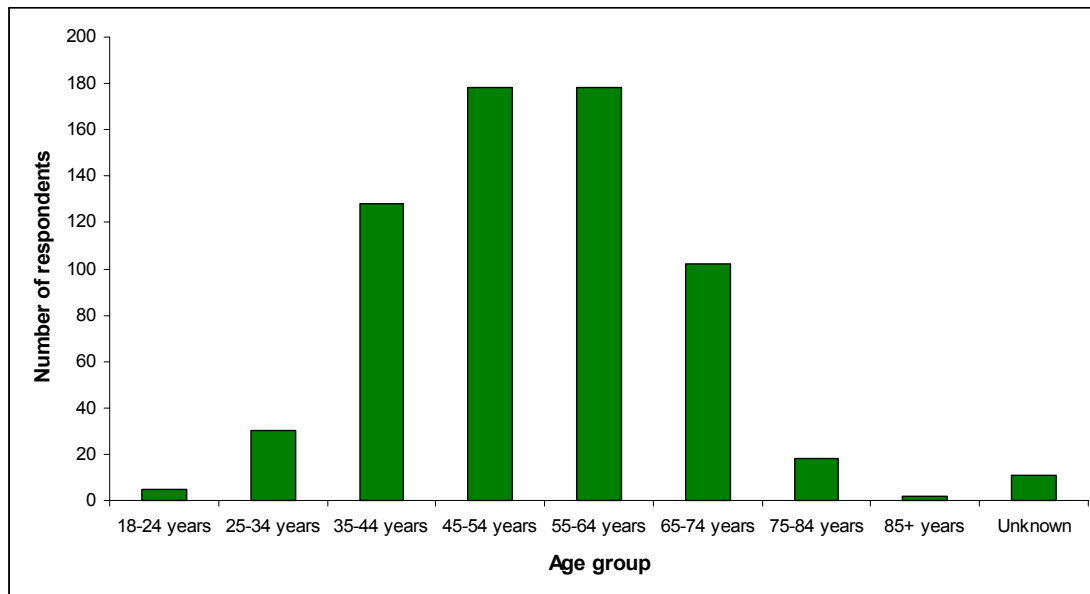
There were 451 responses to the final question of the survey which asked the people who had fitted a ROPS what would prompt farmers to fit a ROPS. The five most common answers were increased awareness (24.6%); fine / legal action / threat of fine (20.8%); higher rebate (14.9%); having an accident or near accident (13.5%); and inspection from WorkCover (11.1%) (Figure 7).

Figure 7 Prompts for farmers to fit a ROPS



The people who fitted a ROPS and responded to this question were mainly (54.8%) aged between 45 and 64 years (Figure 8).

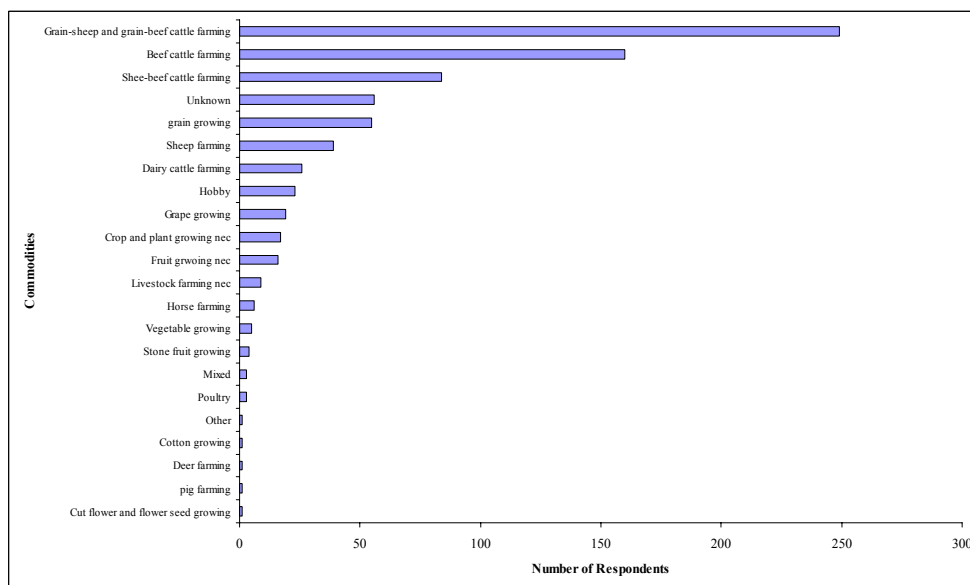
Figure 8 Age of respondents to Follow-up survey



4.4 General Farming Community Survey

There were 779 General Farming Community surveys returned. The most common commodities produced, classified by Australian New Zealand Standard Industry Classification were ‘grain-sheep and grain-beef cattle farming’, ‘beef cattle farming’ and ‘sheep-beef cattle farming’ (Figure 9).

Figure 9 Respondents reported commodities produced by ANZSIC (n=779)



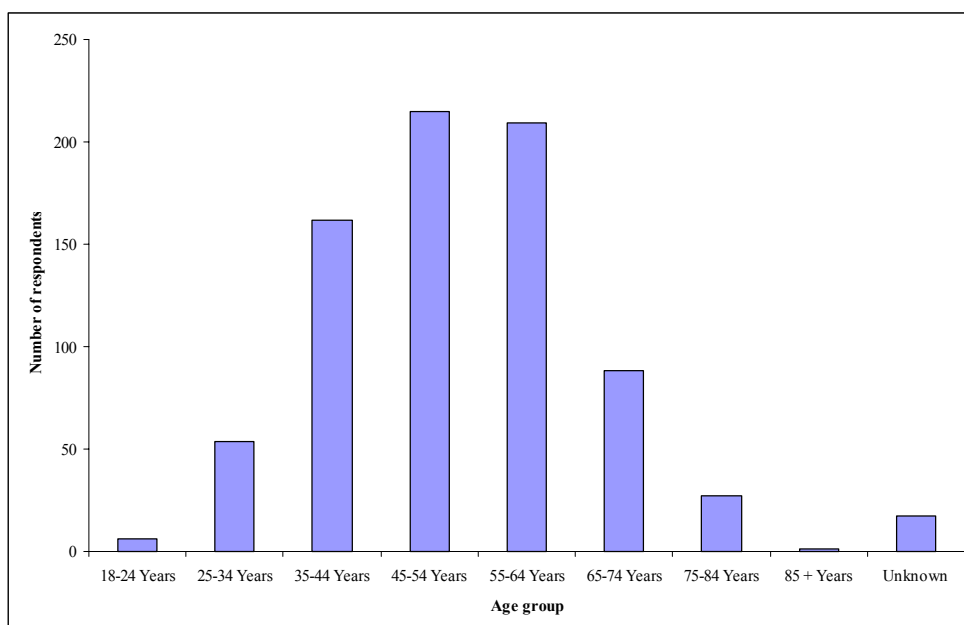
The size of a farm varied by region, the smallest being 1 Hectare in Hunter and Illawarra regions and the largest being 144,000 Hectares in the Far-West Region. The average size of respondent farms was 3,002 Hectares (Table 16).

Table 16 Size of Farm (ha)

Region	Valid Responses	Mean Size	Minimum	Maximum	Std. Deviation
ACT	20	239.4	8	2,400	532.7
Central West	79	767.5	5	5,000	972.1
Far West	22	39469.0	250	144,000	33,410.1
Hunter	47	139.1	1	900	180.1
Illawarra	24	154.1	1	1,580	342.0
Mid-North Coast	58	208.9	2	1,800	402.6
Murray	56	1682.2	2	53,000	7,662.2
Murray LW	55	6907.6	2	80,000	13,741.0
Murrumbidgee	123	1417.9	4	56,000	5,406.1
North Western	105	4794.3	5	60,000	9,060.2
Northern	88	1029.8	4	80,00	1,224.8
Richmond-Tweed	20	273.9	2	2,000	581.1
South Eastern	36	671.0	8	10,000	1,665.7
Sydney	10	249.1	60	480	161.8
Total	743	3002.4	1	144,000	10,543.0

The respondents to the survey were predominantly (54.4%) aged between 45 and 64 years (Figure 10).

Figure 10 Age group of respondents general farming community survey (n=779)

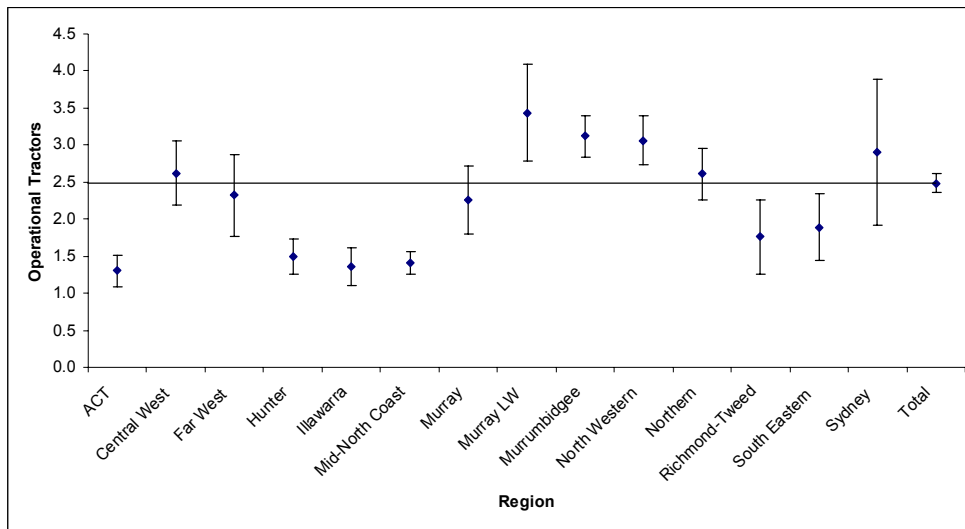


4.4.1 Tractors on Farms

There were on average 2.5 (median 2) operational tractors per farm. However, this varied significantly by WorkCover region, with ACT, Richmond-Tweed, Hunter, Illawarra and Mid-

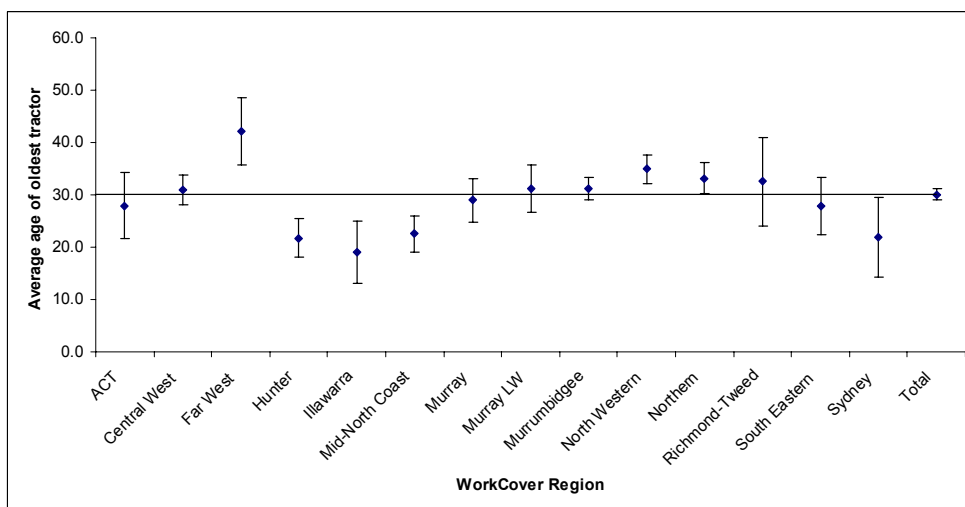
North Coast having significantly fewer tractors per farm than the State average and North-Western, Murray LW and Murrumbidgee having significantly more (Figure 11).

Figure 11 Average number of operational tractors per farm by WorkCover region



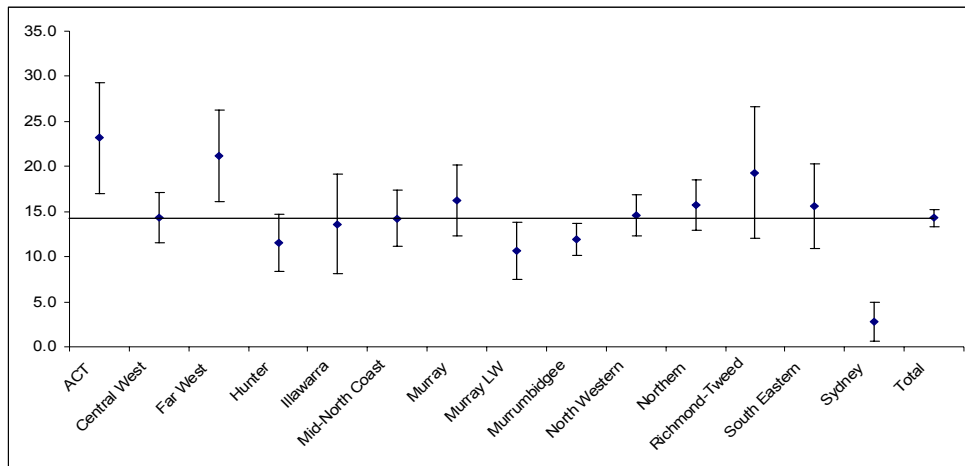
The average age of the oldest operational tractor overall was 30.1 years (median 30 years). Far-West region farmers had tractors on average significantly older and Hunter, Illawarra and Mid-North Coast region farmers had tractors on average significantly younger than the State average (Figure 12).

Figure 12 Average age of oldest operational tractor by WorkCover region.



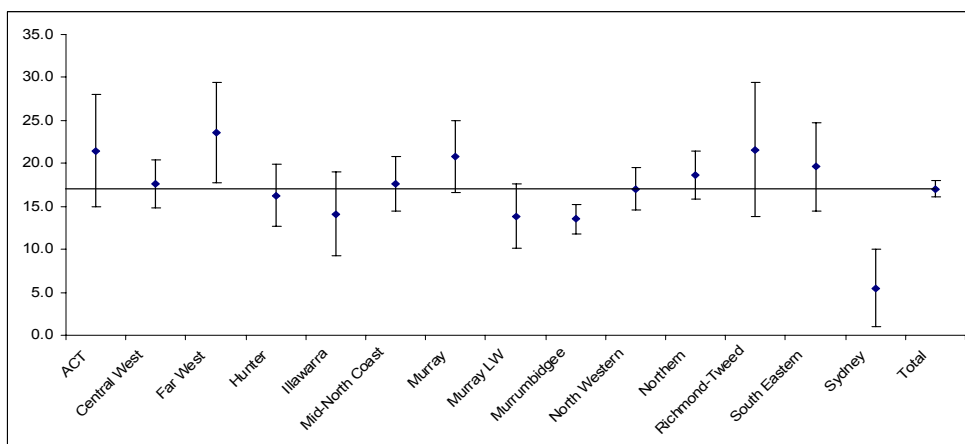
The average age of the newest operational tractor overall was 14.3 years (median 12 years), with the Far-West region farmers having on average significantly older ‘newest’ tractors and Sydney region farmers having on average significantly younger ‘newest’ operational tractors than the State average (Figure 13).

Figure 13 Average age of newest tractor by WorkCover region.



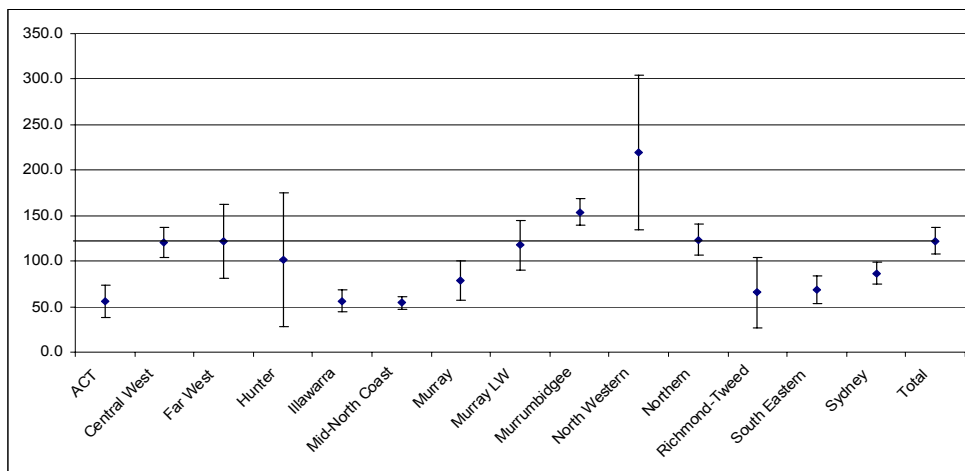
The average age overall of the primary tractor (the tractor that was used most often) was 17.1 years (median 15 years), with only Sydney region farmers having on average significantly younger tractors (Figure 14).

Figure 14 Average age of the primary tractor by WorkCover region.



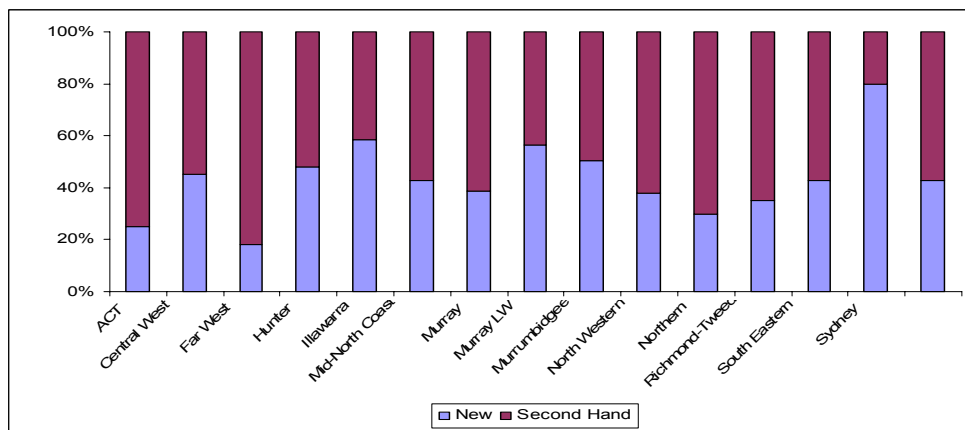
The average overall horse power of the primary tractor was 122.3 hP (median 85 hP), with ACT, South-Eastern, Sydney, Illawarra, Mid-North Coast, and Murray all having tractors with significantly lower horse power (Figure 15).

Figure 15 Average Horse power of tractor by WorkCover region.



Most (57.3%) of the farmers who responded to the survey purchased their primary tractor second hand. This varied by region, with 80% of farmers in the Sydney region buying their tractors new and 18.2% of farms in the Far-West Region buying their tractors new (Figure 16).

Figure 16 Purchase of primary tractor, new vs second hand by WorkCover region.



Since 1982 all new tractors were to be fitted with a ROPS. It was hypothesised that farmers who bought their tractor new were more likely to have all their tractors fitted with a ROPS than those who bought them second-hand. To test this hypothesis purchase of tractor by all tractors fitted with a ROPS was examined. People who bought their tractors new were significantly more likely to have all their tractors fitted with a ROPS ($\chi^2=25.089$, $P<0.0001$). (

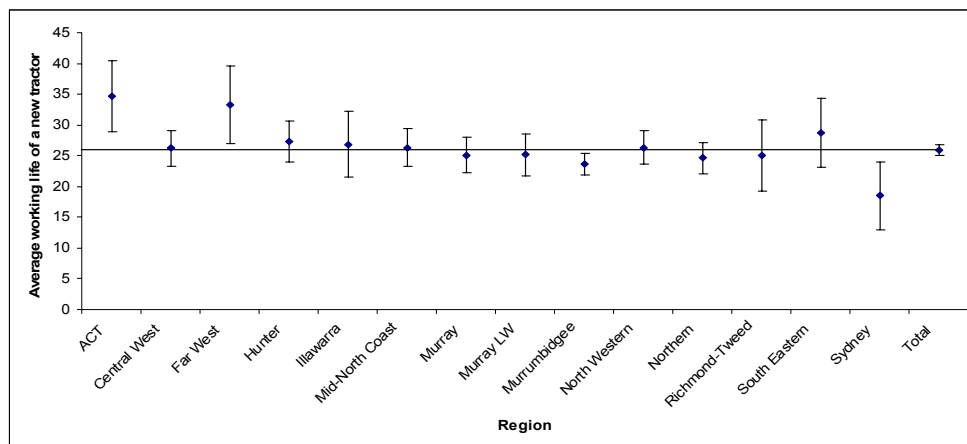
Table 17)

Table 17 Purchase primary tractor new or second hand by all tractors fitted with a ROPS

Did you purchase your primary tractor?	Do all your tractors have a ROPS		
	No	Yes	Total
New	61	262	323
Second Hand	154	280	434
Total	215	542	757

There were 605 farmers who answered the question “What would you estimate to be the working life of a new tractor?” The average estimate of working life was 25.9 years. There was no statistical variation by region. (Figure 17)

Figure 17 Average age of the estimated working life of a new tractor (n=605)



There were 311 farmers who answered the question “How often do you buy a new tractor for your farm enterprise?” The average was 14.2 years. There was no statistical difference between regions (

Figure 18)

There were 651 farmers who answered the question “What would you estimate is the life left in your primary tractor?” The average estimated life left in the primary tractor was 13.4 years. This did not vary statistically by region (Figure 19).

Figure 18 Average duration between purchases of a tractor (n=311)

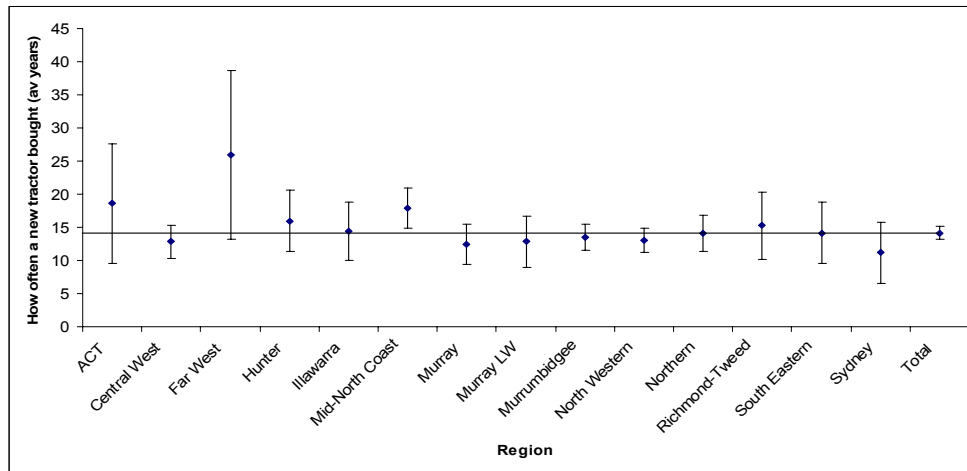
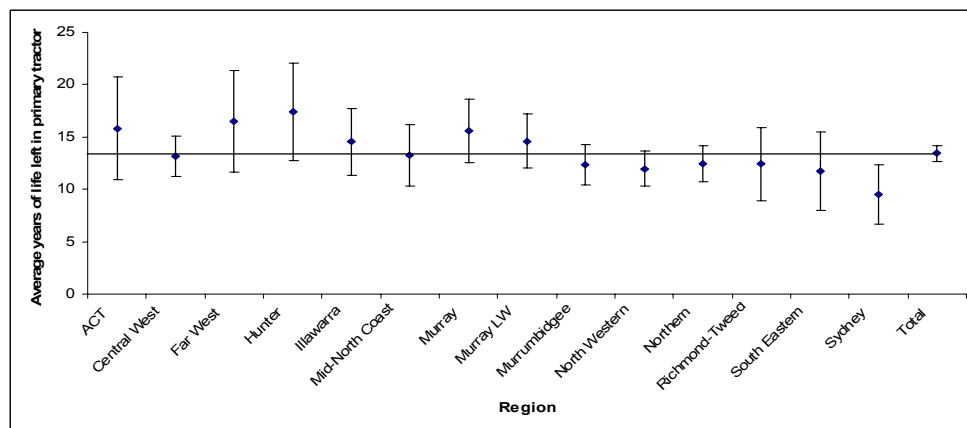


Figure 19 Average estimated life left in primary tractor (n=651)

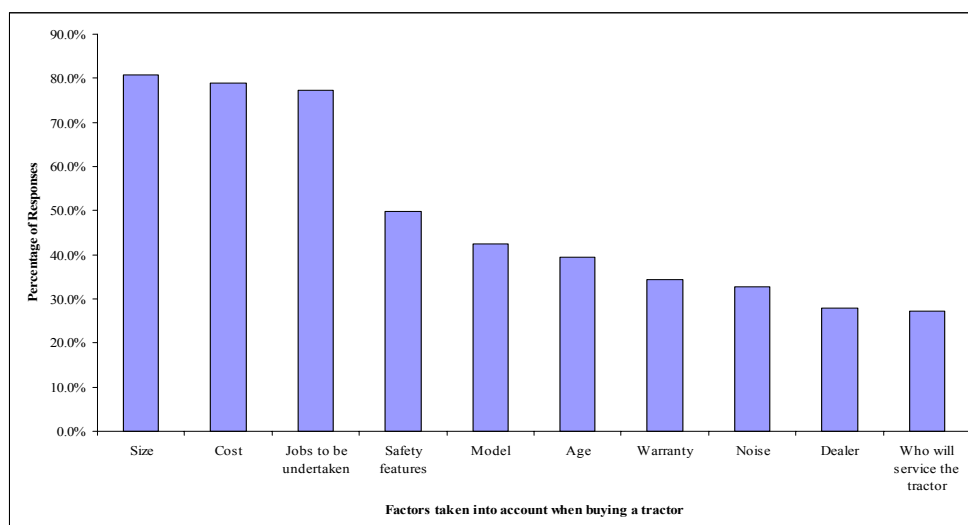


Reasons farmers gave for the replacement of their tractors fell into four groupings:

1. Old/ replacement (e.g. old, out of date, old tractor died, too many hours, maintenance - too costly/ too often, no longer able to be maintained).
2. Change in work practices (e.g. additional planted area, bought more land, changing to growing a new commodity, change of uses, expansion).
3. Technology (e.g. improved technology, air conditioning, 4WD, new attachments, more horse power, better fuel economy).
4. Management practices (e.g. replace on a regular basis, out of warranty, availability of finances, economics, good business practices, update machine, improved reliability, lower maintenance costs).

There were ten factors examined for influence on decision to buy a tractor. The top four identified were size, cost, jobs to be undertaken, and safety features (Figure 20). Other factors identified in the decision process were the general features of the tractor, availability of parts, efficiency, colour and condition.

Figure 20 Factors that influence farmers decision to buy a tractor (n=779)



4.4.2 Rollover Protective Structures (ROPS)

Most (70.5%) of the farmers who responded to the survey had a ROPS on all of their tractors. This did, however, vary by region. All farms in the Sydney region had a ROPS and only 40.9% of farms in the Far-West Region had a ROPS on all their tractors (

Figure 21).

There were on average 0.44 (CI_{95%} 0.37-0.50) tractors per farm that did not have a ROPS. In NSW in 2003 there were 41,952 agricultural establishments with an estimated value of agricultural operations (EVAO) of \$5,000¹⁸. Thus there are potentially 18,430 (CI_{95%} 15,522-20,976) tractors without a ROPS in NSW (Table 18).

Figure 21 Percentage of farms by region for all tractors on the farm having a ROPS (n=779)

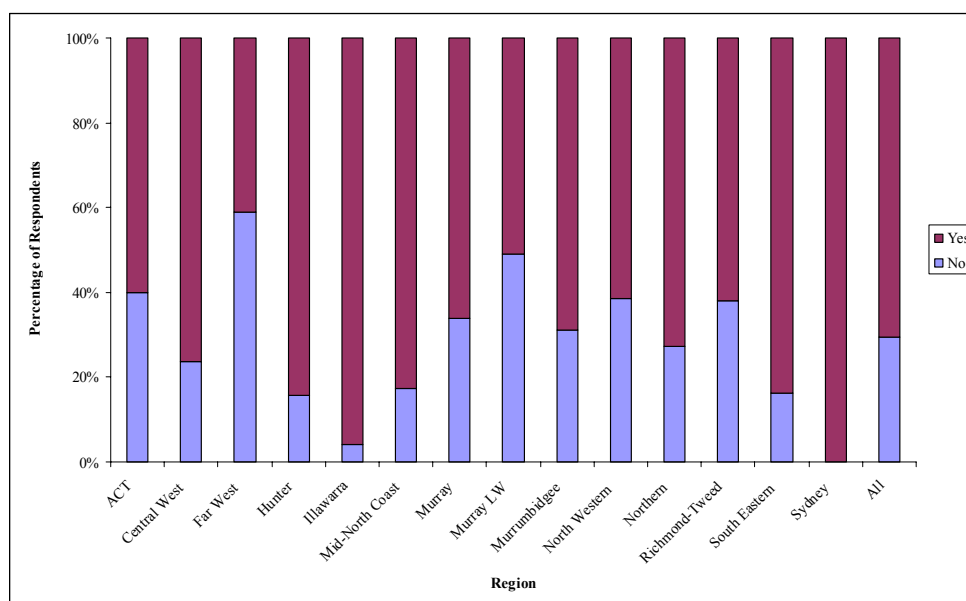


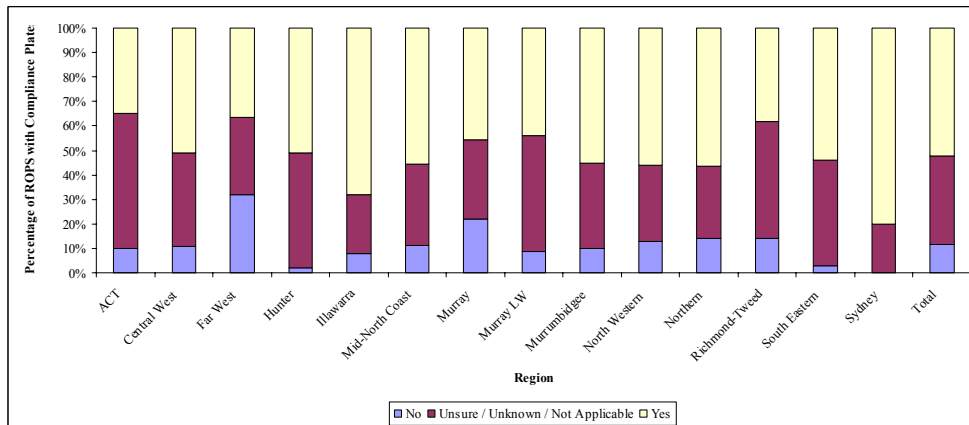
Table 18 Number of tractors without a ROPS by Region

Region	Number of respondents	Number of tractors without a ROPS	Mean	Number of establishments	Potential number of tractors without a ROPS
Central West	81	34	0.42	5,542	2,326
Far West	22	20	0.91	286	260
Hunter	48	6	0.13	3,075	384
Illawarra	23	1	0.04	918	40
Mid-North Coast	62	13	0.21	3,134	657
Murray All	115	64	0.56	3,991	2,221
Murray	58	37	0.64		
Murray LW	57	27	0.47		
Murrumbidgee	126	66	0.52	4,692	2,458
North Western	106	75	0.71	4,286	3,033
Northern	89	30	0.34	6,496	2,190
Richmond-Tweed	21	8	0.38	3,183	1,213
South Eastern All	55	16	0.29	4,429	1,288
South Eastern	36	7	0.19		
ACT	19	9	0.47		
Sydney	10	0	0.00	1,920	0
Total	758	333	0.44	41,952	18,430

Half (52.4%) of the farmers surveyed responded that the ROPS on their tractor had a compliance plate. In the Sydney Region, 80.0% of farmers said their ROPS had a compliance plate whereas only 35.0% of farmers in the ACT said their ROPS had a compliance plate (

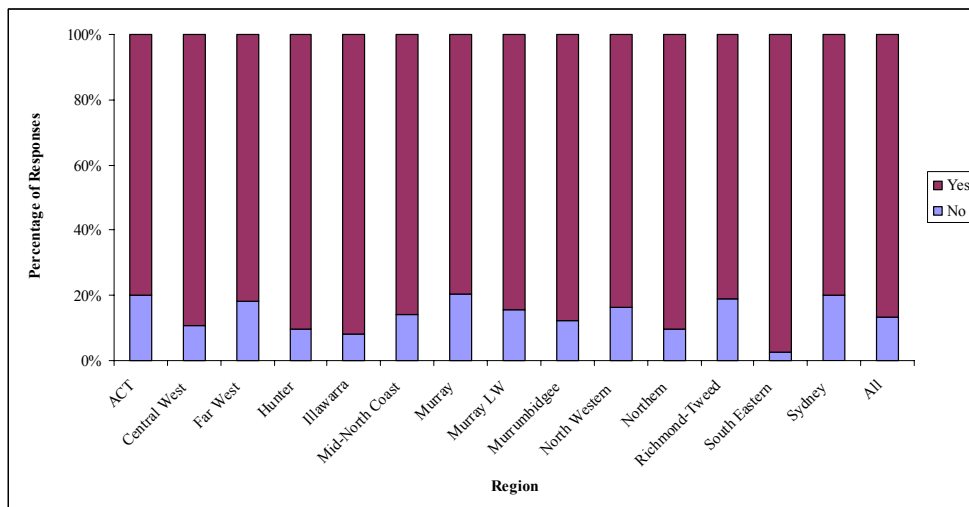
Figure 22).

Figure 22 ROPS with compliance plates by region (n=779)



The majority (86.6%) of farmers believed that a ROPS is effective, there was very little variation by region (Figure 23)

Figure 23 Perceive ROPS is effective by region (n=779)



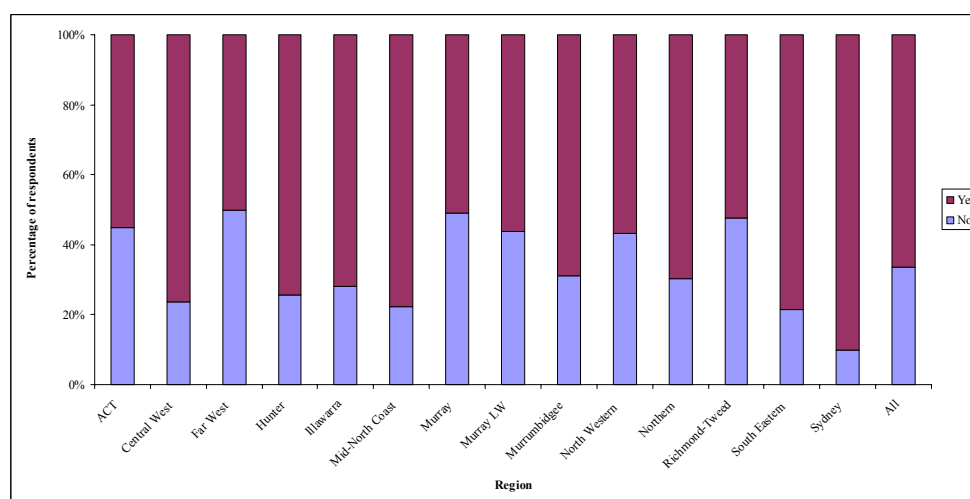
It was hypothesised that those people who thought that a ROPS was not effective would be less likely to have a ROPS on all of their tractors. To test this hypothesis an examination of farmers thinking ROPS was effective by all tractors having a ROPS was undertaken. People who thought that a ROPS was not effective were less likely to have ROPS on all their tractors ($\chi^2=24.182, P<0.0001$). (Table 19)

Table 19 Effectiveness of ROPS by all tractors having a ROPS

Do you think a ROPS is effective?	Do all your tractors have a ROPS		
	No	Yes	Total
No	52	52	104
Yes	178	497	675
Total	230	549	779

Two-thirds (66.4%) of farmers knew that having a ROPS on a tractor had been a legal requirement since 1982. In the Far-West region only half (50.0%) knew, whereas in the Sydney Region 90% of farmers knew. (Figure 24)

Figure 24 Knew ROPS was a legal requirement since 1982 by region (n=779)



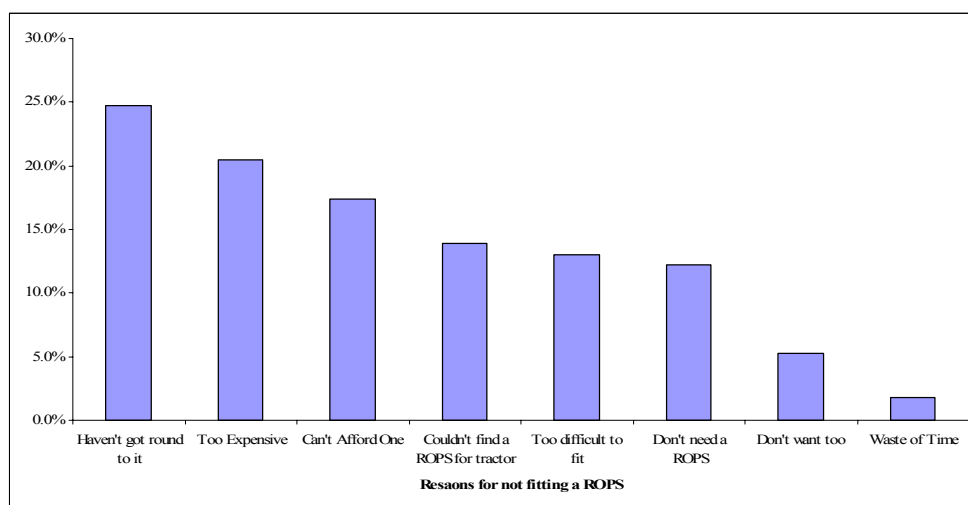
It was hypothesised that people who knew that having a ROPS was a legal requirement would be more likely to have ROPS on all their tractors than those that did not. To test this hypothesis an examination of respondents knowledge of ROPS as a legal requirement by all tractors having a ROPS was examined. It was found that those who knew that a ROPS was a legal requirement were more likely to have put ROPS on all their tractors ($\chi^2=65.401$, $P<0.0001$). (Table 20)

Table 20 Knowledge of ROPS as a legal requirement by all tractors having a ROPS.

Did you know that ROPS are a legal requirement?	Do all your tractors have a ROPS?		
	No	Yes	Total
No	126	136	262
Yes	104	413	517
Total	230	549	779

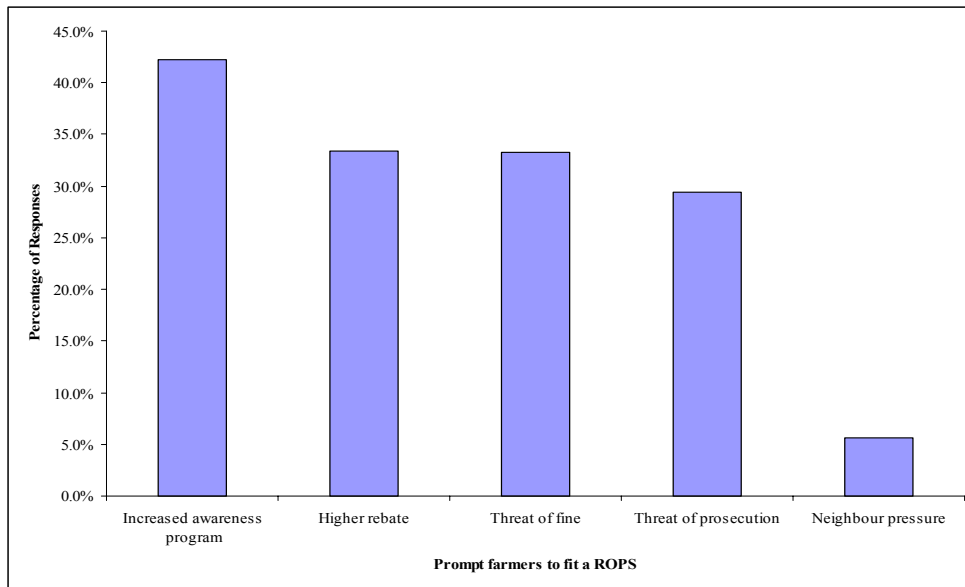
Of the 230 farmers who responded, said that at least one of their tractors does not have a ROPS, one quarter (24.8%) said they had not got around to it. Other common reasons for not having a ROPS were too expensive (20.4%) and can't afford one (24.8%) which comes back to cost (Figure 25). Other reasons given included ROPS not suitable for working conditions, don't use tractor enough, didn't know I needed one, antique, cabin present, old tractor, made my own, and only person driving tractors.

Figure 25 Reasons for not fitting a ROPS (n=230)



The most popular prompt for getting other farmers to fit a ROPS identified by the farmers who responded to the survey was increased awareness program (42.4%), followed by higher rebate (33.4%), threat of fine (33.2%) and threat of prosecution (29.4%). Pressure by a neighbour was not seen as a method for prompting farmers to fit a ROPS (5.6%) (Figure 26). Other prompts for farmers to fit a ROPS were a death or accident in the local area, inspection program, reduced insurance, employee pressure, and training.

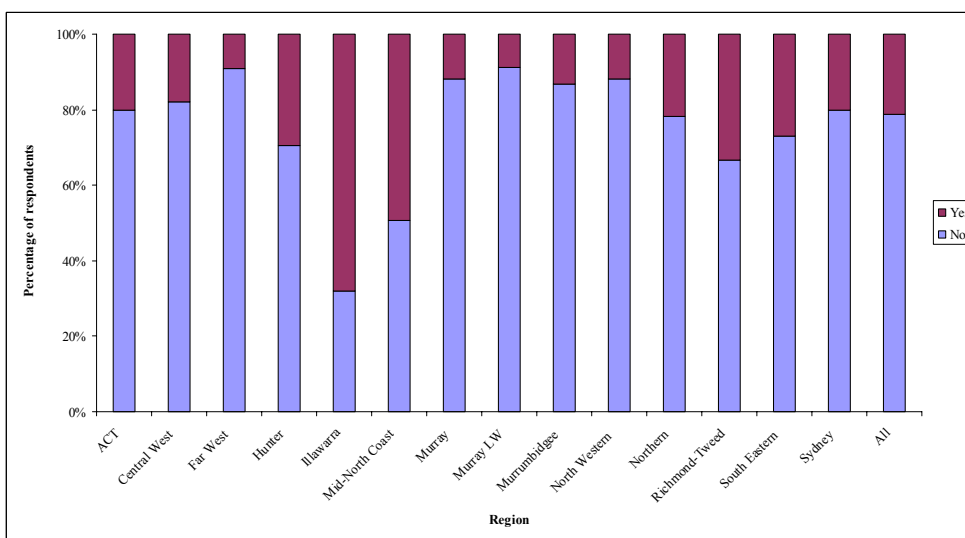
Figure 26 Prompts for getting farmers to fit a ROPS (n=779)



4.4.3 Experience of a tractor rollover

Only one-fifth (21.2%) of farmers who responded had heard about a person in their area that had been seriously injured or died from a tractor rollover. In the Illawarra Region 68% of respondents knew about an injury or death from a tractor rollover whereas in the Far West Region only 9.1% knew of a tractor rollover (Figure 27).

Figure 27 Percentage of respondents that knew about a serious injury or death in their region from a tractor rollover (n=779)



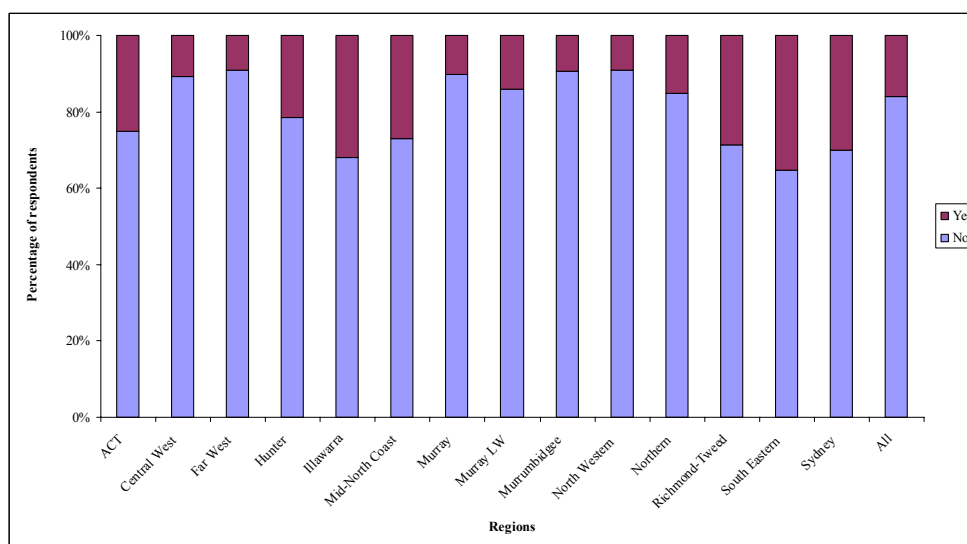
Knowledge of a tractor rollover locally was identified as a method of getting farmers to put a ROPS on their tractor. To test this, an examination of farmer’s responses where they said that all their tractors have a ROPS by knowledge of a tractor rollover was examined. People who knew of a tractor rollover were more likely to have fitted a ROPS on all their tractors ($\chi^2=15.859$, $P<0.0001$) (Table 21).

Table 21 Knowledge of a serious injury or death from a tractor rollover by all tractors having a ROPS fitted

Do you know of any serious injuries or deaths from a tractor rollover	Do all your tractors have a ROPS		
	No	Yes	Total
No	202	412	614
Yes	28	137	165
Total	230	549	779

Only a small percentage (15.9%) of farmers had been involved in a tractor rollover or near rollover. This did vary by region with 35.1% of respondents in the South Eastern Region and only 9.1% in the Far West Region having experience with a rollover or near-rollover. (Figure 28)

Figure 28 Percentage of respondents that had a rollover or near rollover experience (n=779)



Experience of a tractor rollover was identified as likely to increase the possibility of a farmer having a ROPS on all of his tractors. To test this, an examination of farmers’ responses where they had a rollover or near rollover versus all tractors having a ROPS was examined. Farmers

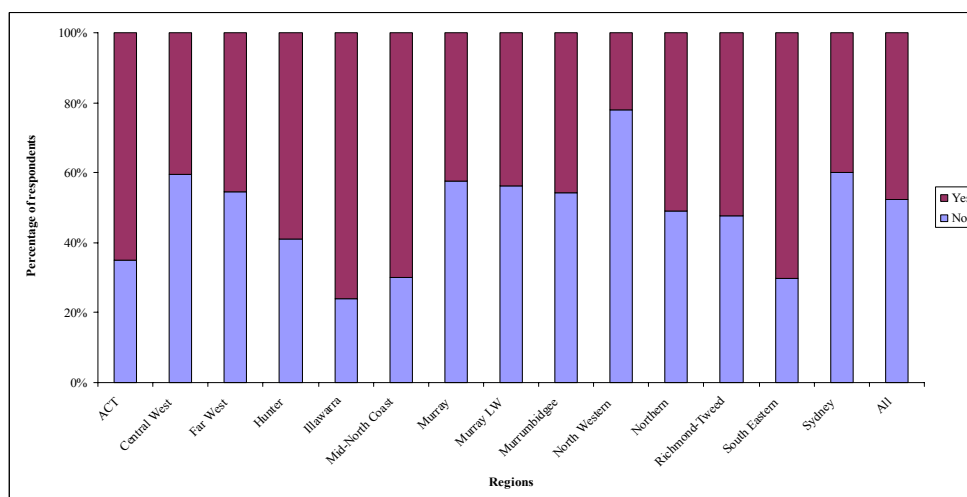
who had experienced a rollover or near rollover were more likely to put a ROPS on their tractor ($\chi^2=7.331$, $P<0.01$), however this relationship was not as strong as for those who knew of a serious injury or death from a tractor. (Table 22)

Table 22 Involvement in a tractor rollover or near rollover by all tractors having a ROPS

Have you been involved in a rollover or near rollover of a tractor	Do all your tractors have a ROPS		
	No	Yes	Total
No	206	449	655
Yes	24	100	124
Total	230	549	779

Half (47.6%) of all respondents felt that drivers of their tractors were at risk of a tractor rollover, with variation by region. Three-quarters (76.0%) of respondents from the Illawarra Region and only one-fifth (22%) of respondents from the North Western Region thought drivers of their tractors were at risk of a rollover. (Figure 29)

Figure 29 Percentage of respondents that thought drivers of their tractors were at risk of a rollover by region (n=779)



It was expected that if people considered there is a risk from a rollover they would do something about this risk. To test this assumption an examination of risk of tractor rollover (Are drivers of tractors on your farm at risk of a rollover?) by all tractors with a ROPS was undertaken. Those respondents who thought drivers of their tractors were likely to have a rollover were more likely to have ROPS on all their tractors ($\chi^2=10.433$, $P<0.001$) (Table 23).

Table 23 Thought drivers of tractors on their farms were at risk of a rollover by all tractors having a ROPS

Are drivers of tractors on your farm at risk of a rollover	Do all your tractors have a ROPS		
	No	Yes	Total
No	141	267	408
Yes	89	282	371
Total	230	549	779

There were four main reasons given for not considering that drivers of a tractor on their farm were at risk of a rollover:

- The most common was that their land was flat or only slightly undulating;
- The second most common was that there was not a risk (e.g. everybody drives safely, common sense is used on my farm, only use the tractor as a power source, all drivers have had training, because we drive carefully);
- Third was that the respondent was the only driver of the tractor,
- Fourth was that a ROPS or cabin was fitted to the tractor.

Slightly under half (42.6%) of all respondents had employees (including contractors and casual labour) on their farms. The respondents from the Hunter Region were least likely (19.6%) to have employees on their farm and the respondents from the Murray LW region were the most likely (56.9%) to have employees on their farm (Figure 30).

Are farmers who have employees on their farm more likely to have ROPS on all their tractors? To test this hypothesis an examination of farms that employed people by all tractors having a ROPS was undertaken. While there was a slight difference (i.e. those that have employees were slightly more likely to fit ROPS to all their tractors) it was not statistically significant (P=0.08) (Table 24).

Figure 30 Percentage of respondents who had employees on their farm by region (n=779)

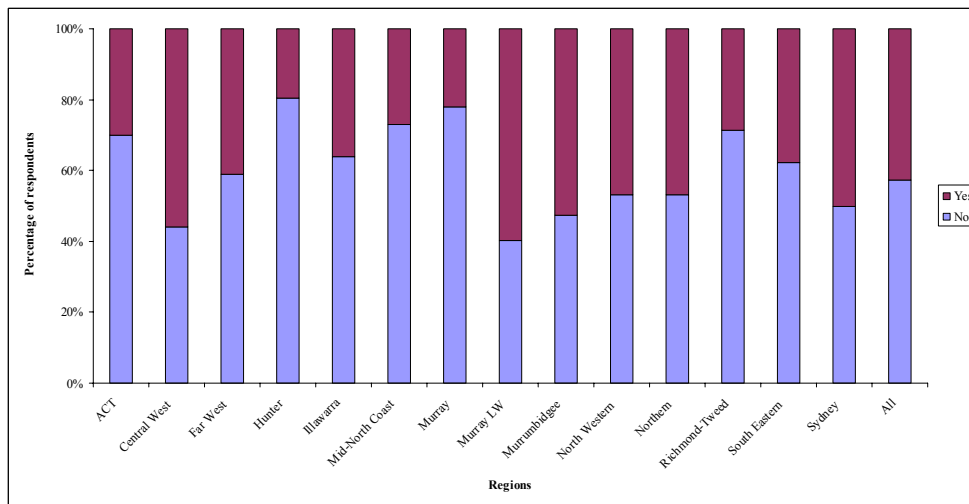


Table 24 Employees on farm by all tractors have a ROPS

Do you have any employees on the farm?	Do all your tractors have a ROPS		
	No	Yes	Total
No	143	304	447
Yes	87	245	332
Total	230	549	779

4.4.4 Information about the ROPS Scheme

Three-quarters (76.0%) of respondents had heard about the ROPS scheme. Less than half (45.5%) of the respondents from the Far West Region had heard about the scheme, whereas the in Central West Region, 91.7% of respondents had heard about the scheme. (Figure 31)

It was hypothesised that if a farmer had heard about the scheme they were more likely to have ROPS on all of their tractors. To test this hypothesis an examination of hearing about the ROPS schemes by all tractors having a ROPS was undertaken. While those who had heard about the scheme were more likely to have ROPS on all of their tractors this was not statistically significant (P=0.07) (Table 25).

Figure 31 Percentage of respondents that had about the ROPS scheme by region (n=779)

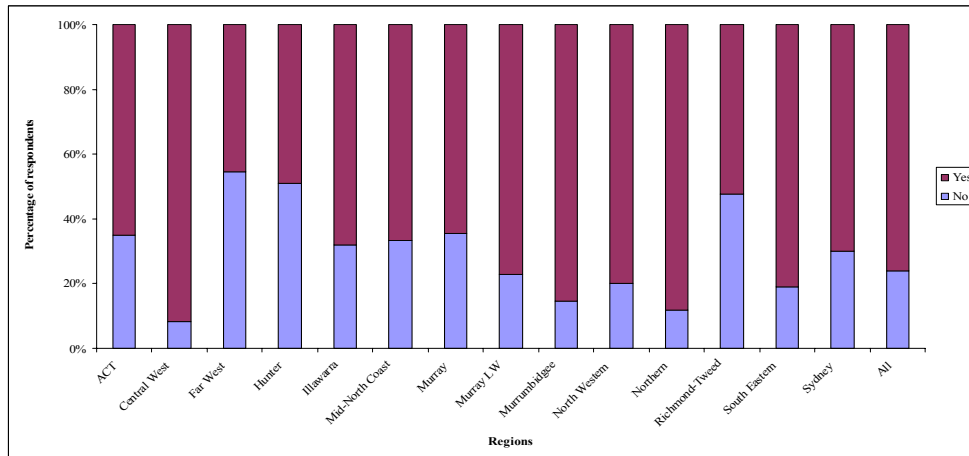


Table 25 Heard about the ROPS scheme by all tractors have a ROPS

Have you heard of the NSW ROPS Scheme	Do all your tractors have a ROPS		
	No	Yes	Total
No	65	122	187
Yes	165	427	592
Total	230	549	779

The most common way in which people had heard about the scheme was through The Land newspaper (54.2%), followed by radio (24.0%) and the local newspaper (22.5%). Other ways people heard about the scheme was through machinery dealers and word of mouth (Figure 32).

A quarter (28.4%) of the people who had heard about the scheme had fitted a ROPS under the scheme (Figure 33). In the Far-West Region 40.0% of respondents who had heard about the scheme had fitted a ROPS, whereas 9.1% of respondents had heard about the scheme in the Richmond-Tweed Region and fitted a ROPS.

Figure 32 How respondents heard about the ROPS Scheme (n=592)

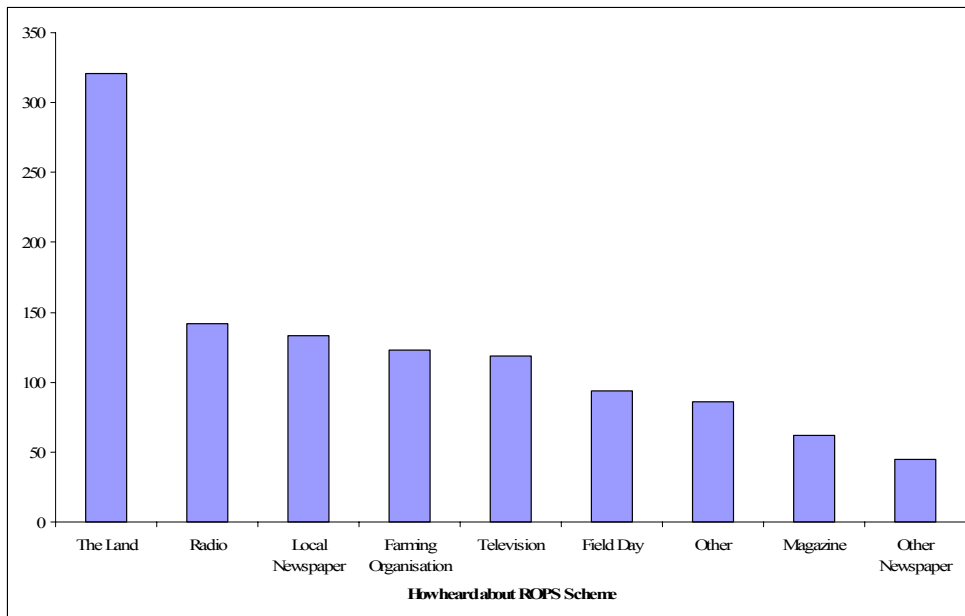
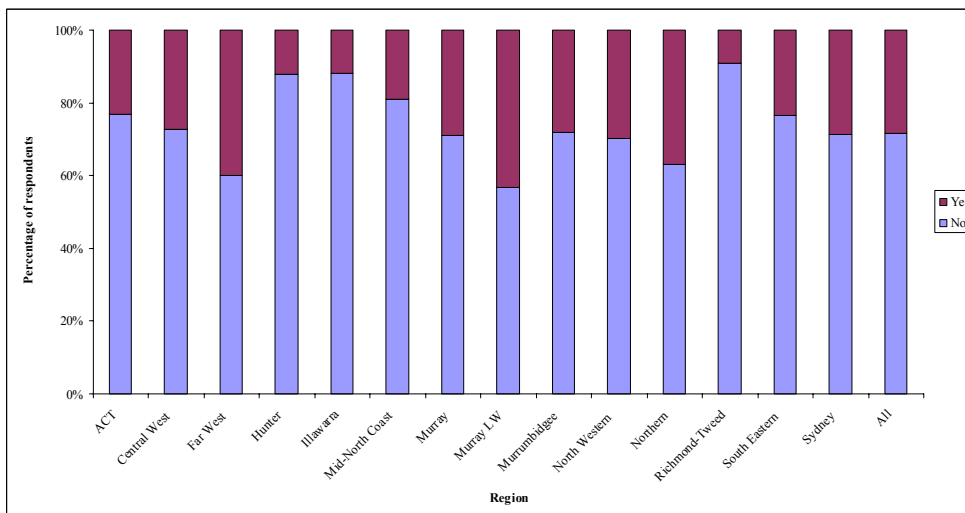


Figure 33 Percentage of people who had heard about the ROPS Scheme that fitted a ROPS under the scheme (n=592)



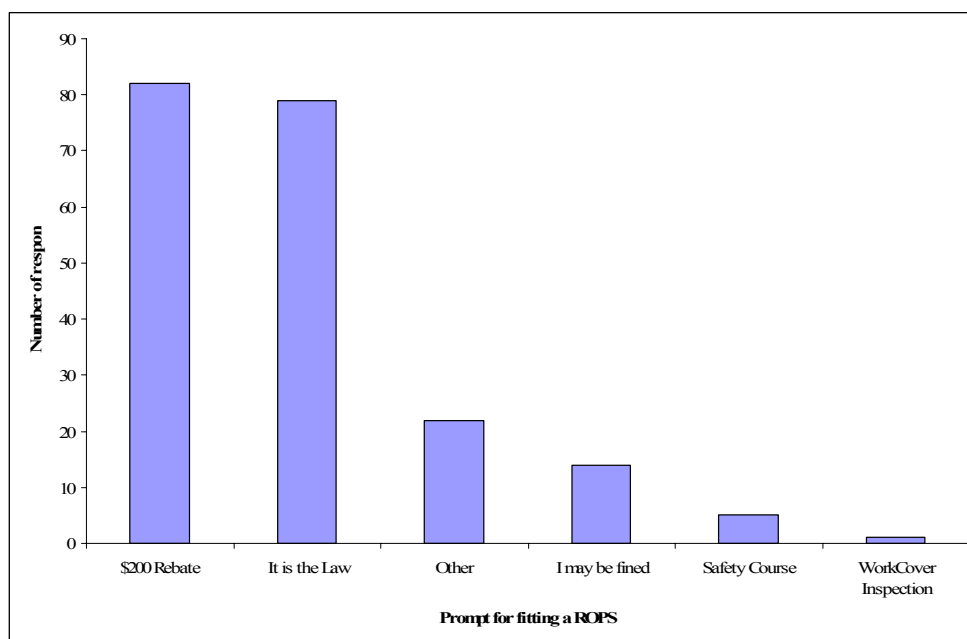
It was hypothesised those who had heard about the scheme and fitted a ROPS during the scheme were more likely to have all their tractors with a ROPS. To test this hypothesis an examination of fitment of ROPS under the scheme by all tractors with a ROPS was undertaken. It was found those who fitted a ROPS under the scheme were more likely to have all tractors with a ROPS ($\chi^2=10.352$, $P\leq 0.001$) (Table 26).

Table 26 Fitted a ROPS under scheme by all tractors have ROPS

Did you fit a ROPS under the scheme?	Do all your tractors have a ROPS		
	No	Yes	Total
No	134	290	424
Yes	31	137	168
Total	165	427	592

The most common reason given for fitting a ROPS was the ‘\$200 rebate’, closely followed by ‘it is the law’. The main other reason given was personal safety (Figure 34).

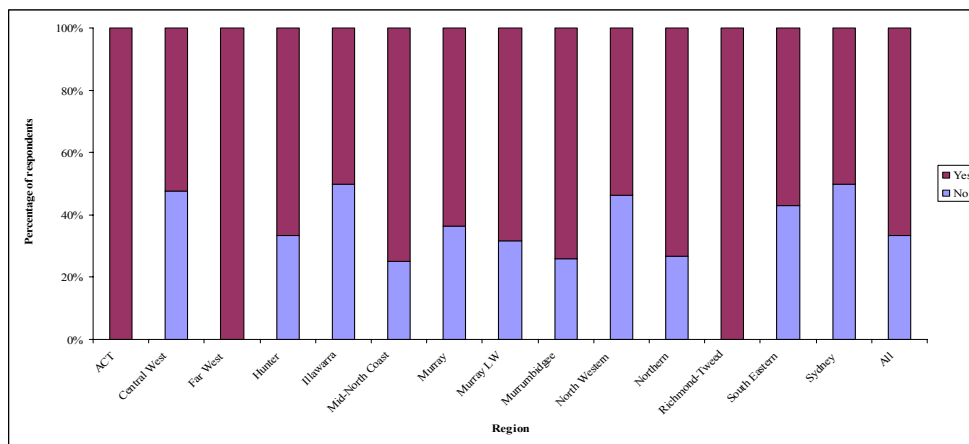
Figure 34 Reason for fitting a ROPS (n=168)



Note: Sums to 203 as some people gave more than one answer.

Of the people who heard about the scheme and fitted a ROPS, two-thirds (66.7%) said they would have done so even without the rebate. In the Far-West and ACT regions 100% of respondents who had heard about the scheme and fitted a ROPS said they would have fitted a ROPS even without the rebate, however in the Sydney and Illawarra regions only 50.0% said they would.

Figure 35 Respondents who had heard about the ROPS scheme and fitted a ROPS and said they would have fitted the ROPS without the rebate by Region (n=168)



It was hypothesised that those respondents who said they would have fitted a ROPS even without the scheme are more likely to have fitted ROPS on all their tractors. To test this hypothesis all people who had heard about the scheme and said they would have fitted a ROPS even without the rebate were compared against all tractors with a ROPS. It was found that people who said they would have fitted a ROPS even without the rebate were more likely to have ROPS on all their tractors ($\chi^2=13.142, P<0.001$) (Table 27).

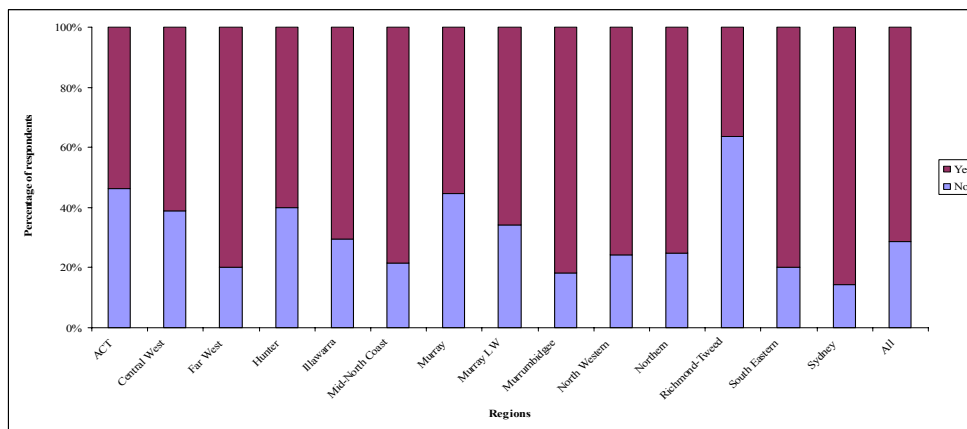
Table 27 Would have fitted a ROPS if there was no rebate by all tractors having a ROPS

Would you have fitted a ROPS if there was no rebate?	Do all your tractors have a ROPS?		
	No	Yes	Total
No	130	270	400
Yes	35	157	192
Total	165	427	592

Of the respondents who had heard about the scheme nearly three-quarters (71.5%) thought there was enough publicity, this did vary by region. In the Richmond-Tweed Region only 36.4% thought there was enough publicity, whereas in the Sydney Region 85.7% thought there was enough publicity (

Figure 36).

Figure 36 Percentage of respondents that had heard about the ROPS scheme and thought there was enough publicity by Region (n=592)



4.5 Minutes of ROPS Committee

Examination of the ROPS Committee minutes by communication / promotion, logistics, monitoring, and partnership for the years 2000, 2001 and 2002 were undertaken. There were no minutes produced in 2003 and 2004 as the Committee resolved that it would not meet unless there was a need.

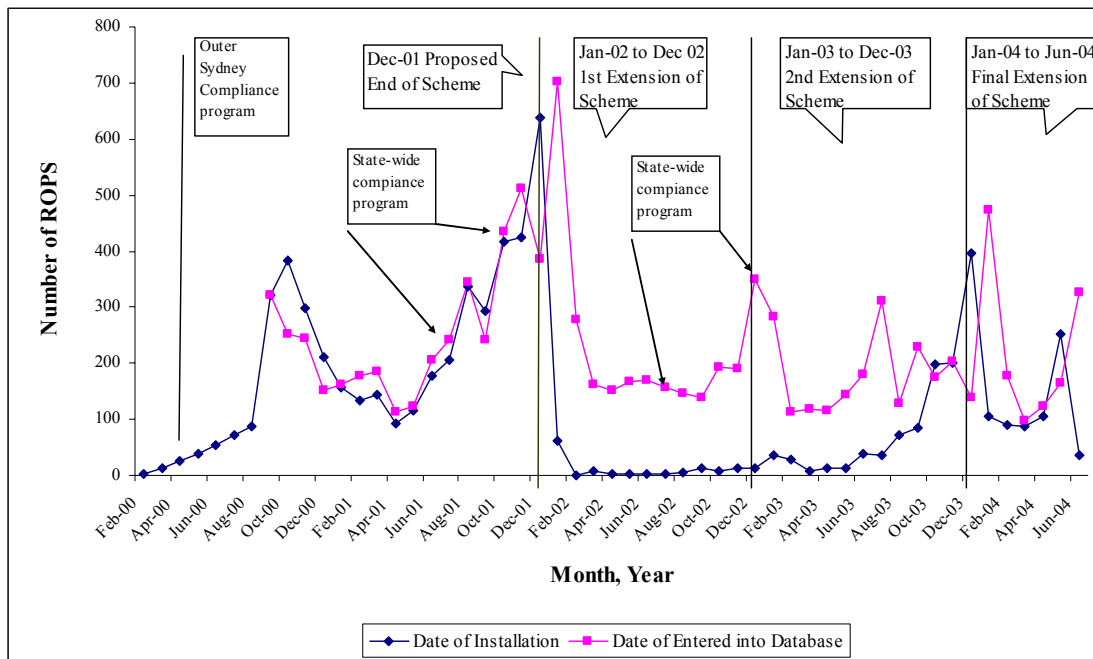
On the whole the ROPS Committee focused on the logistics of the program. Funding was available for the promotion of the scheme which was predominantly undertaken by WorkCover NSW with input from the ROPS Committee and was distributed to Committee member organisations. Due to the limited amount of funds available for the promotion of the ROPS Rebate scheme, it appears the promotion was ad hoc with small periods of intensive promotion. The small periods of promotion were designed by WorkCover NSW to coincide with the compliance program that was to be run.

The Committee on the whole felt that the compliance program was an effective promotion method to increase ROPS fitment and the only issue raised was that the scope of the compliance program was not large enough. The compliance program was funded partially from monies allocated to the ROPS Rebate Scheme, however the activity often had to be incorporated into the current work of WorkCover NSW employees. Compliance programs occurred approximately in the following timeframes:

- April 2001 Outer Sydney

- August 2001 – October 2001 across the state
- July 2002 to December 2002 across the state (Figure 37)

Figure 37 ROPS installed and ROPS rebates entered into database by Month and Year, with identification of Key ROPS Scheme Dates including compliance programs



From the information presented in the minutes, there was a definite increase in the number of ROPS fitted following the introduction of the compliance programs. The compliance programs were also accompanied by advertising. The increase in ROPS fits may have also been influenced by the scheduled completion of the scheme.

The variable nature of the buying of ROPS did present some problems for suppliers managing their workforce.

While the ROPS Committee was on the whole a partnership, there was very little activity that occurred in partnership. The ACAHS undertook the administration of the scheme and WorkCover undertook the promotion and compliance programs. Farmsafe, Tractors and Machinery Association and NSW Farmers promoted the schemes to their members and were available for some media opportunities, such as when the Minister handed over the cheque to farmers who had fitted a ROPS. There was a lot of mention about attending field days; however

there was very little information on what was planned for the field days, who was attending and how these could be improved.

The monitoring of the program was reasonably well undertaken with the committee receiving regular updates on the number of ROPS fitted and towards the end of the Compliance programs the number of farms visited and tractors issued with notices.

5 Discussion

The ROPS rebate scheme set out to do two things: firstly, increase the proportion of tractors on farms in NSW that are fitted with an approved ROPS and, secondly, reduce the number of deaths from tractors rollovers. The evaluation set out to answer seven questions:

1. Was the ROPS rebate scheme successful in reducing the number of tractors in NSW without a ROPS?
2. Has the number of tractor rollover deaths decreased as a result of the ROPS scheme?
3. What was the uptake of the ROPS scheme over time?
4. Did different commodities groups or regions utilise the scheme more than others?
5. Was the scheme administered effectively and did the ROPS committee work?
6. What was the cost of the ROPS scheme?
7. If the ROPS scheme was to be undertaken again what issues should be considered?

To answer these questions a number of methods were used, these were:

- An examination of the information collected as part of the scheme,
- Focus groups (this information was used to develop the questions used as part of the survey),
- A survey of a sample of the people who fitted a ROPS,
- A community survey, and
- Examination of the ROPS Committee minutes.

The following information is provided by examination of process (‘Was the ROPS rebate scheme successful in reducing the number of tractors in NSW without a ROPS?’ and ‘Was the scheme administered effectively and did the ROPS committee work?’), impact (‘What was the uptake of the ROPS scheme over time?’, ‘Did different commodity groups or regions utilise the scheme more than other?’), and ‘What was the cost of the ROPS scheme?’) and outcome (‘Has the number of tractor rollover deaths decreased as a result of the ROPS scheme?’).

5.1 Process

5.1.1 Was the ROPS rebate scheme successful in reducing the number of tractors in NSW without a ROPS?

The scheme was successful, with 10,449 tractors in NSW now fitted with a ROPS that did not have a ROPS in April 2000. It is hard to know how many tractors there were without a ROPS prior to the commencement of the scheme. One estimate from a survey conducted at AgQuip in 1994 estimated there were 88,000 tractors of which between 22,386 and 25,146 did not have a ROPS³.

With 10,449 ROPS fitted it would be expected that the number of tractors without ROPS to be between approximately 12,000 and 16,000. The survey conducted as part of this study found that there were approximately 18,430 (16,951-19,909) tractors without ROPS in NSW as of April 2004. The previous survey was conducted in the Northern Region, which was found in the current survey to have fewer tractors without a ROPS. The Northern Region also had a lower uptake of the scheme per 100 establishments, thus the previous study would probably have underestimated the total number of tractors without a ROPS.³

While the scheme managed to increase the number of tractors with a ROPS there are still a large number of tractors in NSW that do not have a ROPS.

5.1.2 Was the scheme administered effectively and did the ROPS committee work?

On the whole the scheme was administered effectively with an average of 4.5 days for a rebate to be sent out and 95% of farmers having their cheque sent within 28 days. When the people who fitted a ROPS were surveyed, 89% said they had received a cheque within four weeks. People who were unhappy with the scheme were more likely to have not received the rebate within the four week period. This may well have been due to the farmer having not provided all the information in the initial application and needing to send in more information, thus increasing the time to receiving the rebate.

Advertising and promotion of the scheme are also important to the uptake of the rebate scheme. Of the people who fitted a ROPS and were followed up, 75% said there was enough publicity about the scheme and 76% of respondents to the community survey said they had

heard about the scheme. It appears that while the promotion of the scheme was good it could have been undertaken better. Specific skills in advertising and public relations would have been useful on the committee. Money specifically allocated to the undertaking of compliance programs would also have been useful; employing someone for the first two years of the program to undertake compliance activity may have resulted in a faster uptake of the ROPS rebate. Development of a specific promotion plan in the first few months of the scheme may have also been useful and seen a greater coordinated promotion activity from all members of the committee.

With very little television advertising, it was interesting that 16% of those surveyed who fitted a ROPS and 20% of the community survey respondents had heard about the scheme this way, higher than would have been expected. The most common ways people heard about the scheme (follow-up survey, community survey) were The Land newspaper (39%, 54%), farming organisation (18%, 21%), local newspaper (14%, 23%) and radio (12%, 24%).

Most of the people who fitted a ROPS felt there was enough publicity about the scheme: only those who heard about the scheme from a magazine or a field day did not. It should be noted, however, that hearing about the scheme did not mean all of their tractors would have ROPS fitted.

5.2 Impact

5.2.1 What was the uptake of the ROPS scheme over time?

Objectives of the evaluation were to report on the uptake of the program by month, commodity group and WorkCover location and to describe the characteristics of the program.

Figure 2 provides a graph of the fitment of ROPS over time and the rebates entered into the database over time. While there is a minor lag between fitment and entering information into the database, there are some noticeable trends. In particular, utilisation of the program was highest in periods closest to the proposed end dates of the scheme. These dates also coincided with the compliance programs; thus, it is hard to determine if the end date or the compliance program had the biggest effect (it is probably a combination of both). It is

unknown whether running the scheme for longer initially would have led to a better uptake in the early months of 2002.

The multiple finishing dates of the scheme may have actually been a benefit to the fitment of ROPS, as there was an increase in the number of ROPS every time the scheme was scheduled to close. One of the reasons farmers gave as to why they did not fit a ROPS was “that they had not got round to it”. Having a closing date for receiving a rebate was perhaps enough of a push to have farmers fit a ROPS.

Different WorkCover regions had different rates of ROPS fitment per 100 establishments. While it is hard to speculate why this may have been the case, an examination of the advertising and ROPS compliance program might provide an indication of the impact of advertising and compliance program on the uptake of the ROPS rebate. Other factors that would affect the number of ROPS fitted are the number of tractors prior to the program without a ROPS in that area, the season the area had (i.e. good or bad), and commodity groups present.

There was a large difference in the number of ROPS fitted per 100 establishments by commodity grouping, with crop and plant growing and horticulture having the highest rate. This, however, needs to be interpreted with caution as there were a large number of mixed farms where if more information was known would have been classified into a specific commodity group. There were also a large number of people who identified their farms as ‘hobby farm’, which would be unlikely to have work related tractor rollover deaths, as these farms are not working farms.

5.2.2 Did different commodity groups or regions utilise the scheme more than other?

The number of ROPS fitted to tractors per 100 establishments varied by region, with Sydney having the highest number and the Far West having the lowest number. The number of potential tractors without a ROPS also varied. Some regions, such as the Illawarra and the Hunter, have potentially very low numbers of tractors without ROPS.

The fitment of ROPS by commodity groups also varied significantly, with the livestock industries seeing more ROPS fitted per 100 farms. With mixed farming and hobby farming having approximately a third (37.5%) of all ROPS fitted, crop and plant growing NEC and horticulture and fruit group had fitment rates per 100 establishments of 37.9 and 29.7 respectively.

5.2.3 What was the cost of the ROPS scheme?

The average cost of a ROPS was \$576, with a total of \$6,519,406 dollars spent on ROPS. A further \$157,203 was spent on fitment of the ROPS. A total of \$2,082,200 was provided by the scheme for ROPS (10,411 ROPS x \$200), thus farmers spent more than \$4,594,409 on ROPS.

On average the cost of ROPS rose by \$51 over the period of the ROPS scheme or an increase of 8.5%. The change in CPI during this period was 9.7%. Thus, cost of ROPS increased approximately in line with CPI²¹. Although another interpretation could be that the less expensive ROPS were fitted first and the more expensive ROPS were fitted later in the scheme.

The data suggest that the number of tractors without a ROPS has decreased by approximately 1/3 (34%) over the period May 2000 to June 2004. As there were six deaths in the five years (1995-1999) prior to the scheme, a reduction of deaths by a third would equate to two lives saved every five years from ROPS fitment. A natural attrition of tractors out of the workplace due to age is also expected. Between 1990-1994 (13 deaths) and 1995-1999 (6 deaths), the number of deaths from tractor rollovers halved. In the next period (2000-2004) there were four deaths - a reduction of a third. It is expected that there would be only two deaths in NSW from tractor rollover in the period 2005-2009.

There are some issues with the estimation of the number of lives saved as it does not take into account exposure and in the survey many people identified that it was not their main tractor that did not have a ROPS but the secondary tractors that were used occasionally, thus the effect of the scheme may be much greater.

Another cost that needs to be included is the cost of fitting the ROPS by the farmer, which took an average of 3.7 hours. Thus there were $10,449 \times 3.7 \text{ hour} = 3,866.13$ hours used to fit a ROPS. Assuming the minimum wage is approximately \$12.30 then this would equate to a minimum of \$475,500 in indirect costs in fitting a ROPS.

Day and Rechnitzer in their evaluation of the Victoria ROPS rebate scheme estimated the average lifetime cost per tractor rollover deaths to be \$522,210. If there are approximately two lives every five years saved, this scheme will pay for itself within 10 years¹. Each tractor that had a ROPS fitted on average had another 14.2 years of estimated life left. This equates to a total of 14,838 years of work in which the drivers of the tractors will be protected if the tractor rolls over.

Some unanticipated benefits from the scheme included that people were more aware of safety on the farm more generally. Examples of how this was acted upon during the scheme were the introduction of a rebate for hand pieces on shearing equipment, an increase in the number of Managing Farm Safety courses, and a Wool Shed design program.

5.3 Outcome

5.3.1 Has the number of tractor rollover deaths decreased as a result of the ROPS scheme?

This question is not as easy to answer, as an examination of rollover deaths over an extended period needs to be undertaken. A reliable outcome evaluation was not available due to lack of routinely available data and funds were not provided to undertake a more rigorous analysis of tractor rollover deaths. However, information provided by WorkCover (Table 1) shows that there has been a decrease in the number of tractor deaths since the mid 1990s. Part of this decrease is probably from the natural attrition of tractors out of the workforce (due to old age). The natural attrition of tractors out of the workforce would be slow with the average working life of a tractor being 25.9 years.

An examination of tractor rollover deaths in three five year periods, 1990-1994 (13 deaths), 1995-1999 (6 deaths), 2000-2004 (4 deaths), shows there has been a decrease in the number of tractor deaths since the introduction of the ROPS scheme. However, this information

should be interpreted with caution as Franklin et al found that only two thirds (67.7%) of agricultural tractor related deaths were collected by OHS authorities and Workers' Compensation information ⁶.

5.4 Possible biases in the evaluation

It is not possible to gain an understanding of why people did not respond to the mail surveys. However, analysis of the returned information did not find any significant biases. In the survey sent to farmers who fitted a ROPS, there may have been some recall bias as some of the people surveyed would have fitted their ROPS more than 12 months prior to receiving the survey.

In the General Farming Community Survey there were a low number of returned forms from the number sent; however, this was to be expected as not all RMB represent farms in the area and this survey was a one off with no reminders or notice of intent. There was no way to follow-up people who had not returned a form. The response rate increased when the number of farms for the area was used as the denominator. However, there is no way of knowing exactly how many farms there are in any given area and so this method may under or over estimate the true number of farms. In addition, not all farms have an RMB. There was also a need to separate employees from contractors and casual labour, who may not use the tractor.

While the questions in the survey were piloted with farmers some interpretation of questions may vary, changing the underlying assumptions of the survey. For example, having a ROPS on all tractors may not be an indication of attitude or intent to act (as assumed in this report), it may mean that the farmer bought all his tractors after 1982 or that the farmer is a better manager who is more financially secure and has the resources to ensure all his tractors have a ROPS.

5.5 Directions for future farm injury prevention programs based on information obtained from the ROPS evaluation

There were two main reasons people fitted a ROPS: the rebate and the law. Increased awareness was also a factor that prompted people to fit a ROPS. This means that future campaigns in farm injury where people are required to purchase, replace, improve or build a

safety device should ensure that people are aware of the safety device (i.e. what is it, how well it works, and what it prevents), that there is a form of reward for fitting it (rebate) and that it is required by law.

The four most common reasons for not fitting a ROPS were that there was a cabin present, they do not use the tractor or it is not working, the cost of the ROPS and could not find a ROPS. These can be interpreted as barriers. That is, presence of a cabin represents other similar devices that people think does the same job thus no need to change or people are unwilling to replace the cabin with a two-post ROPS due to weather or other reasons. If equipment is not used often, then the owner is less likely to improve its safety. Cost is usually a barrier and in this case providing the rebate reduced the impact of the cost. If it is difficult to find a safety device or a person does not know about it, then it is less likely that it will be found and used. Addressing these barriers as part of a farm injury prevention campaign should increase the uptake of the safety device.

People who knew of a serious injury or death in their region were more likely to ensure all their tractors were fitted with a ROPS. Thus if wanting to increase the uptake of safety measures, when there is a death or serious injury, the local media and/or other methods of raising peoples awareness of the issues should be undertaken to ensure people in that locality know about the death or serious injury. To ensure that the safety device is implemented, farmers will also require information about how the safety device would have saved the person's life or reduced the severity of the injury²².

Increased awareness of ROPS and the consequences of tractor rollovers may help increase the fitment of ROPS, however as the number of deaths from tractor rollovers decreases, the ability to use this as an impetus for fitment of a ROPS will become more difficult.

Legal action (inspection and enforcement) appears to be the best method to increase the number of tractors in NSW fitted with a ROPS. This is similar to other safety initiatives, such as drink driving, speeding on roads, wearing of seatbelts and pool fencing, where legal action has been found to be effective in making people undertake safer behaviour²³⁻²⁹. In this study the number of ROPS fitted increased when compliance programs were being implemented. Where possible, linking a rebate scheme with enforcement of legal activities should help increase the uptake of the safety initiative.

The appropriate amount of the rebate is always difficult to determine. It may be a fixed amount or a percentage of the total costs. In the ROPS example if a rebate of greater value had been provided it may have been counter-productive, as those who had not fitted a ROPS may continue to wait in the belief the rebate will increase further. The provision of a set timeframe in which the rebate is available appears to motivate people to take advantage of the scheme. In this study there was an increase in the number of rebates as the closing date (note this was revised three times) for the scheme approached. Thus those schemes with no closing date may not be as successful as those with a specified period.

There were a number of difficulties that farmers encountered when they were fitting a ROPS. These difficulties included having to make modifications, removing existing components, aligning of attachment holes, acquiring a ROPS, poor quality of the ROPS and poor fitment instructions. To help alleviate these problems a solutions database accessible on the web (that could also be printed out) could be made available. For ROPS this could include things such as how to avoid hitting overhanging objects, fitment instructions from manufacturers, tips for removing old bolts, and tips for aligning the ROPS with the tractor's frame. The ability for farmers to provide feedback about problems and their solutions that can be accessed by others should also help to improve the uptake of other safety devices.

Administration of the scheme is an important aspect in ensuring the success of the scheme. Providing the rebate in a timely manner was found to be linked to the happiness of the participants. Thus, the administration of a scheme needs to be addressed early in a program. It was found that those who did not (or perceived that they did not) receive their rebate within four weeks were significantly more likely to be unhappy with the scheme.

Another aspect of the administration of the scheme which caused people to be unhappy was the amount of paper work. Reducing the amount of paperwork and increasing speed of processing may have helped keep people happy, which in turn should help with promotion of the scheme by word-of-mouth.

Ensuring people understand the effectiveness of a safety device and the risk of being injured or killed if the safety device is not present is important for the success of the program. In this study, there were misconceptions about the risk of a tractor rollover. Many farmers in this

study believed that they were not at risk of a tractor rollover because their land was flat; they were experienced; had common sense; were aware of safety; or carried out risk assessments. While these may (although there is no evidence this is the case) reduce the risk of a tractor rollover they do not eliminate the risk.

It is interesting to note that while people said they would have fitted a ROPS even without the rebate they did not do so before the scheme became available. The scheme therefore either prompted them to fit a ROPS through the rebate or reminded them to do something they had been planning to do for a while.

5.6 Utility of existing data to provide performance measure for ROPS

Chapter 4 to Chapter 7 provide a wealth of data about the overall status of people who are injured on farms, during farm activity, or are employed in agricultural industries. However, there is no one data source which provides information about tractor deaths and whether these deaths resulted from a tractor rollover.

Examination of a specific prevention activity and its effectiveness is often difficult where that activity is a subset of other occurrences, such as a death from a tractor rollover. While Workers' Compensation included information on tractors deaths, it had been found previously that this information was incomplete and that the information provided was not detailed enough to capture tractor rollover deaths⁶. In the ABS Deaths data there was no specific category for tractors. This situation is currently being rectified by the National Coroners Information System (NCIS), which provide information about all non-natural deaths in Australia.

The use of the other data sources to provide information about specific farm injury prevention initiatives will be limited unless these initiatives are specific to the dataset. For example, the prevention of eye injuries to agricultural workers could be monitored via Workers' Compensation information.

The development of performance indicators that can be measured using different information sources will continue to be needed for the monitoring of farm injury prevention initiatives.

There are some opportunities for this information to be collected via other methods, such as the ABS agricultural survey and census.

Conclusion

Death from tractor rollover is a problem in Australia and ensuring a ROPS is fitted is a simple and effective solution. In May of 2000 the NSW State Government announced funding for a ROPS retro-fitment campaign, where the first 10,000 farmers to fit a ROPS would receive a \$200 rebate. The objective of the ROPS rebate scheme was “To increase the proportion of tractors on farms in NSW that are fitted with an approved ROPS in order to reduce the number of deaths from tractor rollovers”. The NSW ROPS rebate scheme was successful in fitting 10,449 ROPS onto tractors, thus achieving the first part of the objective.

According to figures from NSW WorkCover, the number of tractor deaths in the period 2000-2004 decreased to four deaths from six deaths in the previous five year period (1995-1999). While it is difficult to know if this reduction is a direct result of the scheme, it is likely that the 10,449 ROPS that were fitted and the awareness of the issues created by the scheme would have contributed.

The ROPS rebate scheme was well run and had a number of lessons for future farm safety campaigns, such as:

- when providing a rebate, the administration (i.e. sending the cheque) needs to be done well;
- advertising is important and should be co-ordinated;
- increasing awareness of the risk(s) involved that are being prevented and subsequent solution (s);
- increasing awareness of the outcome the intervention is aiming to prevent;
- undertaking compliance; and
- addressing barriers to uptake.

Summary ROPS Evaluation

1. Death from tractor rollover has been a continuing problem in Australia. However, a simple but effective solution exists to prevent people from being killed when the tractor rolls over. A rollover protective structure (ROPS) is a frame fitted to a tractor to protect the operator by providing a zone of protection. The ROPS must comply with either Australian Standards AS 1636 Tractor Roll-Over Protective Structures – Criteria or AS 2294 Earth-Moving Protective Structures.
2. In NSW in 1982 legislation was enacted requiring all tractors weighing between 560 and 15,000kg to be fitted with a ROPS that conforms to AS1636. While some farmers fitted ROPS to their tractors when the legislation first came in, many did not.
3. Following a national tractor conference in 1991 held by Farmsafe Australia a project was undertaken to improve Australia's understanding of tractor safety. As part of this project a survey of farmers who attended the agricultural field day 'AgQuip' in NSW was used to estimate that the number of tractors in NSW without a ROPS. This estimate was 23,766 tractors.
4. Since 1990 there have been 23 tractor rollover deaths and the number of rollover deaths per annum decreased during this period. Between 1990 and 1994 there were 13 deaths, between 1995 and 1999 there were 6 deaths and between 2000 and 2004 there were four deaths.
5. In May of 2000 the NSW State Government announced funding for a ROPS retro-fitment campaign where the first 10,000 farmers to fit a ROPS would receive a \$200 rebate. This historic announcement followed the very successful campaign in Victoria where 12,129 ROPS were fitted to tractors.
6. The objective of the ROPS rebate scheme was "To increase the proportion of tractors on farms in NSW that are fitted with an approved ROPS in order to reduce the number of deaths from tractor rollovers".
7. The evaluation set out to answer seven questions:
 - a. Was the ROPS rebate scheme successful in reducing the number of tractors in NSW without a ROPS?

- b. Has the number of tractors rollover deaths decreased as a result of the ROPS scheme?
 - c. What was the uptake of the ROPS scheme over time?
 - d. Did different commodities groups or regions utilise the scheme more than others?
 - e. Was the scheme administered effectively and did the ROPS committee work well?
 - f. What was the cost of the ROPS scheme?
 - g. If the ROPS scheme was to be undertaken again what issues should be considered?
8. To answer these questions a number of methods were used. These were:
- a. Focus groups (this information was then used to develop the survey),
 - b. An examination of the information collected as part of the scheme,
 - c. A survey of a sample of the people who fitted a ROPS,
 - d. A community survey, and
 - e. Examination of the ROPS Committee minutes.
9. The evaluation found the following answers to the seven questions:
- a. The ROPS rebate scheme was successful in reducing the number of tractors in NSW without a ROPS by 10,449.
 - b. The number of tractor rollover deaths may have decreased as a result of the ROPS scheme.
 - c. The scheme ebbed and flowed around closing dates and the compliance program. While the closing dates may have seen a drop off in the number of ROPS rebates afterwards, the multiple closing dates may have prompted farmers to fit a ROPS as one of the barriers identified was that “they had not got round to it”.
 - d. Different commodities groups or regions utilised the scheme more than others. Livestock industries fitted more ROPS under the scheme per 100 establishments.
 - e. The scheme was administered effectively and the ROPS Committee worked. Rebates were sent out on average within 4.5 days and 89% of those survey said that they received their rebate with in four weeks. Three quarters of the people

survey said that they had heard about the scheme. The compliance program increased the uptake of ROPS.

- f. Farmers spent over \$6,519,406 on ROPS of which the NSW Government contributed \$2,082,200.
 - g. Issues that should be considered if a new ROPS rebate scheme was to be undertaken include: administration; improved coordination of advertising program; increased awareness of rollover deaths; more compliance; addressing the difficulties that were encountered as part of fitting the ROPS; and increasing awareness about risk of rollover.
10. The NSW ROPS rebate scheme was successful in fitting a large number of ROPS onto tractors that would not have otherwise been fitted. It was on the whole well run and had a number of spin offs for improved safety in other areas.
11. None of the available data from on-going collections was able to provide any information about the impact of the placement of ROPS on farm tractors in NSW (i.e. injuries or fatalities related to tractor rollovers were not able to be identified). The National Coroners Information System which started in 2002 may be able to provide information for future studies.

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