



Government of South Australia
SafeWork SA



POST IMPLEMENTATION REPORT

Agricultural Plant Designer, Manufacturer, Supplier and Importer Program

A National Program Coordinated by the
Heads of Workplace Safety Authorities Farm
Safety Working Group

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1 EXECUTIVE SUMMARY

The Agricultural Plant Designer, Manufacturer, Supplier and Importer Program (the Program) was managed by the Farm Safety Working Group, under the auspices of the Heads of Workplace Safety Authorities (HWSA). The Program was proposed in December 2004 and approved by HWSA in July 2005. The key elements of the program were a series of information sessions for industry, conducted in each State, followed by a coordinated program of field audit visits to machinery importers, manufacturers, suppliers and associated businesses. The visits served to collect data on plant risk assessments, to educate suppliers on legislative obligations and to gauge plant safety compliance. The program began in July 2005 and was completed in February 2006.

The Program involved collaboration between all six participating States in order to develop uniform information materials and inspection checklists. The *National Standard for Plant* served as a guidance tool in the development of the inspection checklists.

During the period July 2005 to October 2005, over fifty information seminars, attended by hundreds of industry participants, were conducted across the nation. These advised the agricultural plant industry sector of the program; the forthcoming inspections; the relevant state legislation; and the requirements for agricultural plant to be sold in a safe condition.

A coordinated field audit visits exercise was conducted between October 2005 and February 2006. In total, 672 workplace visits were conducted. Over 100 Inspectors utilised the common inspection checklist to inspect 2,502 pieces of agricultural plant held by over 500 suppliers, 114 manufacturers, 47 designers, 16 importers, one auctioneer and one plant wrecker¹.

Four specific types of agricultural plant were the focus of visits: tractors; tractor attachments; grain augers; and attachments for All Terrain Vehicles (ATVs). Both new and used plant was inspected and findings for each separately recorded.

The most significant finding from the audit visits was that across all four types of plant, there was a higher degree of compliance with the safety legislation and standards for new plant than there was for used plant.

New and used tractors sold in Australia were found to be safety-compliant in 93% and 91% of items inspected, respectively. Safety compliance for new and second-hand tractor attachments was found to be 95% and 86% respectively. There was found to be a lower level of safety compliance for grain augers. New augers overall had an 87% compliance while only 51% of used augers inspected were found to be

¹ Businesses may have been engaged in more than one activity – refer Appendix 8.2 for details

compliant. It was found that 100% of new ATV attachments and 80% of used ATV attachments were safety-compliant.

These results indicate that used tractors, tractor attachments, grain augers and ATV attachments are less likely to be supplied to their new owners in a safe condition. This may be due to wear and tear, inadequate general maintenance or guards having been removed or damaged and not being replaced/repaired. In the case of older plant, it is possible that even if it is sold with guards and other safety features as per original manufacturer's specification, it may still be intrinsically unsafe in some way. Irrespective of whether such plant ever did comply with safety requirements or is now non-compliant due to advances in the safety requirements since the item was manufactured, re-sellers in most states have obligations to ensure that it is safe for current-day use when used properly.

Other issues arising from the inspections varied between the States: Victoria identified issues of adequacy of guards on a specific brand of slasher and on grain augers; Western Australia identified issues with the adequacy of guards on a brand of silage baler; NSW identified issues of inadequate grain auger guards and concerns over the level of accountability for plant safety of auctioneers and other non-retailing vendors.

Recommendations arising from the program are that:

1. Manufacturers, importers and suppliers of agricultural plant implement a comprehensive safety risk assessment and control system for all items they manufacture, import and/or offer for sale. This would cover manufacturers operational/safe use manuals, other safety information, appropriate guarding, maintenance records, operator control identification, safety signage and decals. Used plant is an area for particular attention.
2. Further work be considered by workplace safety authorities and industry to address grain auger safety and tractor attachment safety.
3. The development of a model for workplace safety authorities to work in partnership with manufacturers and peak industry organisations to identify practical solutions to agricultural plant risks be considered. The NSW model, the *Agricultural Plant Technical Solutions Reference Group* may provide guidance in this area. Solutions identified by such groups should be disseminated nationally.
4. All State workplace health and safety regulators continue to work toward national uniformity in regulation, information, assistance and enforcement of agricultural industry safety, in particular the area of agricultural plant. This can be facilitated in the current revision of the *National Standard for Plant*.

2 INTRODUCTION

Six State workplace health and safety authorities, in New South Wales, West Australia, South Australia, Victoria, Tasmania and Queensland, conducted the Agricultural Plant Designer, Manufacturer, Supplier and Importer Program between July 2005 and February 2006. This program was a coordinated education and compliance exercise targeting agricultural plant designers, manufacturers, importers and suppliers under the auspices of the Farm Safety Working Group of the Heads of Workplace Safety Authorities (HWSA).

This report details the planning, conduct and findings of the program. It provides an analysis of those findings and makes recommendations for both industry and workplace safety authorities in pursuit of agricultural plant safety improvements.

3 PROGRAM OBJECTIVES

The program objectives were to:

1. Engage the national agricultural plant industry through seminars in each state
2. Demonstrate a nationally consistent approach with key safety messages regarding the obligations of agricultural plant manufacturers, suppliers and importers
3. Audit a sample of plant manufacturers, suppliers, retailers (both new and used) and importers in each jurisdiction for occupational health and safety (OHS) compliance
4. Provide feedback to the national agricultural plant industry to guide it in achieving higher levels of safety in plant design, manufacture and supply
5. Provide greater levels of surety to the farming community that agricultural plant purchased in good faith is safe when properly used.

4 INFORMATION SEMINARS

4.1 CONDUCT OF THE SEMINARS

The program commenced with businesses engaged in the targeted industry sectors being invited to attend one of the many information seminars delivered by each State. The key messages delivered at the information seminars were that inspections were to commence soon and that an effective risk management system should be demonstrated for all agricultural plant for sale. The seminars addressed the first and second objectives of the program. Typical seminar coverage was:

- Project overview
- Project focus – tractors, tractor attachments, grain augers, ATV attachments
- Obligations
- Risk Management Process
- Hierarchies of control
- Record keeping
- Design issues
- Guidance information
- Examination and testing

Note - details of legislative requirements varied slightly from State to State. The relevant occupational health and safety legislation pertaining to duty holders in the jurisdiction is based on their application of the *National Standard for Plant*. However, there is one point of divergence. Unlike other jurisdictions, a person selling used plant in NSW has no responsibility to rectify safety related problems; instead, they have to advise the prospective purchaser in writing of the faults detected with the plant prior to the point of sale. This Report and the information included in the tables, does not make this distinction.

A total of over 35 seminars were conducted across Australia, as shown below. Around 900 individuals, representing businesses engaged in design, manufacture, import and/or supply of agricultural plant attended the seminars.

Table A: Seminars – Number and attendees

STATE	NO. OF SEMINARS	NO. OF ATTENDEES
NSW	10	263
Qld	8	129
Vic	6	350
SA	5	117
WA	4	Not available
Tas	2	17

4.2 FINDINGS FROM THE SEMINARS

Feedback from attendees was very positive, with the majority indicating an increased understanding of their OHS obligations. A small number of issues were raised however there was no national consistency in these, as shown below:

Table B: Issues raised at seminars

STATE	ISSUES RAISED
NSW	OHS plant compliance requirements for auction and clearance sale operators lesser than those for retail suppliers. This issue raised at seminars but more prominently through one peak supplier association directly to WorkCover NSW.
Qld	No specific issues common to all seminars
Vic	OHS plant compliance requirements for auctioneers lesser than those for retail suppliers
SA	OHS plant compliance requirements for auctioneers and other forms of non-dealer sale
WA	No specific issues common to all seminars
Tas	OHS plant compliance through auction sales and at farmer-to-farmer sale level should be looked at. (This has since been done directly by Tas)

5 FIELD AUDIT VISITS

5.1 METHODOLOGY

5.1.1 Focus Areas

The program focussed on 4 types of agricultural plant that have been involved in injuries or fatalities on farms in Australia over at least the last 10 years. These were: tractors, tractor attachments, grain augers and ATV attachments. Specific questions were asked of businesses visited for each type of plant so as to determine the levels of safety compliance for each.

It was also probable that there would be differences in safety compliance between new and used plant, given both the age of some agricultural plant still in use and the high degree of wear and tear on it during normal operation. Accordingly, the field visit questionnaire was divided so as to cover both new and used models of the four plant types.

5.1.2 Identification of Visit Sites

Information from a number of sources was used to identify all businesses in Australia engaged in design, manufacture, import and/or supply of the four focus types of plant. This included (variously by each State):

- the Australian Bureau of Statistics
- Tractor and Machinery Association
- Motor Traders Association
- Telephone Directory listings
- Local workplace safety authority staff knowledge (especially in regional/rural areas)

In total, 672 workplace visits were conducted. Inspectors examined 2,502 plant items across 502 suppliers; 114 manufacturers; 47 designers, 16 importers, one plant wrecker and one auctioneer. The appendix at 8.1 provides state-by state details.

Against estimates of around 640 new and used tractor/machinery dealerships at 800 sites nationwide, the visits undertaken through this program have reached a significant proportion of the retail new/reseller segment of the industry (refer to the appendix at 8.2 for a statistical note). The auction, local design and import segments, however, represent indicative samples only.

5.1.3 Use of Standard Checklist

To allow compilation of a national data set, field visits in each State used a standard checklist. A summary version of the checklist is provided at the appendix at 8.3 and includes national summary results for all 80 questions possible.

5.1.4 Advice and Compliance

In addition to completion of the checklist, where non-compliance on an item of plant was evidenced by an inspector, s/he offered advice and information and where required, issued improvement notices under the applicable State OHS legislation.

Information on the number, type and subsequent compliance with, improvement notices has not been included in this report. These are matters resting with each State and dependent on State legislation and its application.

5.2 FIELD AUDIT FINDINGS

The key findings of the program audit visits, which present the results of the 80 questions asked in 12 tables, cover the following categories:

1. evidence of a risk assessment process
2. new pre-delivery and used maintenance inspection records
3. provision of instruction manual/s
4. provision of safety information
5. fitting of tractor ROPS/FOPS
6. fitting of seat belts to tractors
7. fitting of PTO shaft and master guard/s
8. guarding of power input coupling
9. fitting of other guards and safety devices
10. marking of operational controls
11. appropriate safety signage and decals
12. safe access to and egress from the plant

Findings are based on inspections of 2,502 new and used agricultural plant items.

The percentages in the following tables are based on the assessments by visiting Inspectors as to whether the plant met the criteria specified in the checklist. In general terms this comprised the requirements of the particular State OHS legislation, any applicable State-based plant legislation additional to the core OHS legislation, the *National Standard for Plant* and manufacturers' specifications.

Note: State level percentages in any particular table cannot be equated to the national level percentage in that table due to variations in the number of businesses visited or plant items inspected in each State.

Table 1 – Evidence of a risk assessment process

		Tractors % Compliant		Tractor attachments % Compliant		Grain augers % Compliant		ATV attachments % Compliant	
Jurisdiction	Audits	New	Used	New	Used	New	Used	New	Used
New South Wales	100	95%	90%	77%	81%	80%	100%	47%	-
West Australia	135	52%	61%	67%	53%	67%	100%#	-	-
Queensland	159	91%	79%	82%	71%	71%	56%	98%	100%
South Australia	95	92%	65%	86%	83%	88%	-	83%	83%
Tasmania	51	100%	66%	50%	42%	100%	59%	50%	67%
Victoria	132	93%	85%	91%	87%	86%	77%	89%	100%
Nation-wide	672	79%	74%	82%	72%	90%	66%	82%	85%

Overall, a high proportion of businesses visited were able to demonstrate effective safety risk management systems for the plant that they imported, designed and/or supplied. There was a marked difference, however, between the risk management standard for new plant and that for used plant, most notably for grain augers.

#Note: The Western Australia result of 100% for used grain augers should not be taken to indicate the state-wide compliance level, as this represents only one auger inspected. This precaution also applies to this result as marked (#) in Tables 2 – 4 and 9 – 11.

Table 2 - New Pre-delivery & Used Maintenance Inspection Records

		Tractors % adequate records		Tractor attachments % adequate records		Grain augers % adequate records		ATV attachments % adequate records	
Jurisdiction	Audits	New	Used	New	Used	New	Used	New	Used
New South Wales	100	100%	88%	84%	81%	75%	75%	60%	-
West Australia	135	86%	86%	93%	85%	83%	100%#	-	-
Queensland	159	98%	78%	88%	72%	100%	50%	93%	100%
South Australia	95	100%	92%	97%	88%	88%	-	100%	100%
Tasmania	51	0%	31%	100%	32%	66%	71%	67%	56%
Victoria	132	94%	76%	93%	77%	91%	62%	94%	100%
Nation-wide	672	93%	77%	91%	74%	89%	63%	86%	86%

Compliance was again found to be high, although less for tractor attachments, grain augers and ATV attachments than for tractors. Businesses were usually less able to provide maintenance records for used plant that they supplied, significantly so for grain augers.

refer Note above.

Table 3 - Is an instruction manual provided with plant?

		Tractors % complied		Tractor attachments % complied		Grain augers % complied		ATV attachments % complied	
Jurisdiction	Audits	New	Used	New	Used	New	Used	New	Used
New South Wales	100	100%	100%	94%	100%	80%	67%	80%	-
West Australia	135	98%	97%	96%	91%	100%	100%#	-	-
Queensland	159	98%	87%	93%	82%	100%	53%	91%	83%
South Australia	95	100%	83%	100%	91%	88%	-	100%	100%
Tasmania	51	100%	41%	50%	26%	100%	47%	67%	33%
Victoria	132	100%	94%	95%	92%	100%	75%	94%	100%
Nation-wide	672	99%	87%	95%	84%	97%	58%	89%	74%

A high percentage of new plant was found to be sold with instruction manuals. This was also found to be the case with used tractors and tractor attachments, however far fewer used ATV attachments had an instruction manual and a very low percentage of used grain augers were supplied with a manual.

refer Note page 10.

Table 4 – When supplied to a purchaser, is safety information provided?

		Tractors % safety information provided		Tractor implements % safety information provided		Grain augers % safety information provided		ATV attachments % safety information provided	
Jurisdiction	Audits	New	Used	New	Used	New	Used	New	Used
New South Wales	100	100%	100%	97%	100%	100%	100%	74%	—
West Australia	135	97%	95%	91%	97%	100%	100%#	—	—
Queensland	159	98%	88%	93%	88%	93%	53%	93%	83%
South Australia	95	100%	85%	100%	92%	100%	100%	100%	100%
Tasmania	51	100%	84%	75%	68%	100%	76%	67%	67%
Victoria	132	100%	97%	97%	98%	100%	75%	94%	100%
Nation-wide	672	98%	91%	95%	92%	98%	71%	89%	87%

High response rates were recorded for all types of new and used plant, with the exception of used grain augers.

refer Note page 10.

Table 5 – When supplied to a purchaser is the tractor fitted with a Roll-over Protective Structure (ROPS) where required by legislation?

Jurisdiction	Audits	Tractors % with ROPS fitted	
		New	Used
New South Wales	100	93%	90%
West Australia	135	84%	87%
Queensland	159	95%	87%
South Australia	95	100%	100%
Tasmania	51	100%	84%
Victoria	132	100%	96%
Nation-wide	672	93%	91%

Nationwide, there was a high level of compliance with ROPS requirements across new and used tractors.

Table 6 - Are seat belts fitted to new and used tractors?

Jurisdiction	Audits	Tractors % seat belts fitted	
		New	Used
New South Wales	100	93%	92%
West Australia	135	93%	87%
Queensland	159	97%	68%
South Australia	95	100%	97%
Tasmania	51	100%	94%
Victoria	132	97%	63%
Nation-wide	672	97%	80%

A very high percentage of new tractors had seat belts fitted, however a much lower percentage of used tractors were fitted with seat belts. The checklists did not record the age of used tractors so no analysis beyond these figures was possible.

Table 7 - When supplied to a purchaser, is the tractor fitted with a Power Take Off (PTO) Shaft and Master Guard?

Jurisdiction	Audits	Tractors % PTO adequately guarded		Tractor implements % PTO shaft guarded	
		New	Used	New	Used
New South Wales	100	100%	97%	100%	94%
West Australia	135	91%	89%	91%	94%
Queensland	159	100%	80%	98%	85%
South Australia	95	100%	95%	96%	84%
Tasmania	51	100%	52%	75%	42%
Victoria	132	97%	88%	98%	100%
Nation-wide	672	97%	81%	97%	86%

Consistent with other findings for new tractors, there was a high percentage compliance with PTO master guard requirements. The same high level of guarding was found with PTO shafts on new tractor attachments. Used tractors and attachments were more likely however to be found without PTO drive/shaft guards

Table 8 - Is the tractor implement Power Input Coupling (PIC) adequately guarded?

Jurisdiction	Audits	Tractor implements % PIC guarded	
		New	Used
New South Wales	100	91%	100%
Western Australia	135	91%	94%
Queensland	159	97%	90%
South Australia	95	95%	94%
Tasmania	51	75%	42%
Victoria	132	100%	89%
Nation-wide	672	96%	92%

Nationally, a high level of guarding compliance was observed in both the new and used tractor implement Power Input Couplings.

Table 9 - When supplied to a purchaser is plant fitted with other guards and safety devices?

		Tractors		Tractor implements		Grain augers		ATV attachments	
		% Other guards fitted		% Other guards fitted		% Other guards fitted		% Other guards fitted	
Jurisdiction	Audits	New	Used	New	Used	New	Used	New	Used
New South Wales	100	100%	100%	85%	85%	60%	33%	100%	-
Western Australia	135	93%	98%	93%	79%	50%	100%#	-	-
Queensland	159	100%	93%	94%	88%	100%	50%	100%	100%
South Australia	95	100%	94%	97%	95%	86%	-	100%	100%
Tasmania	51	100%	42%	75%	42%	33%	29%	100%	56%
Victoria	132	99%	88%	98%	98%	100%	77%	100%	100%
Nation-wide	672	98%	90%	95%	86%	87%	51%	100%	80%

Tractors, tractor implements and ATV attachments were found to have other types of guards and safety device fitted in most cases. Used ATV attachments, however and used grain augers in particular, were found to have far less guarding/other safety devices fitted.

refer Note page 10.

Table 10 – Are operator controls marked and identifiable?

		Tractors		Tractor implements		Grain augers		ATV attachments	
		% adequately marked		% adequately marked		% adequately marked		% adequately marked	
Jurisdiction	Audits	New	Used	New	Used	New	Used	New	Used
New South Wales	100	100%	90%	96%	100%	83%	67%	58%	-
West Australia	135	97%	93%	97%	96%	50%	100%#	-	-
Queensland	159	100%	92%	97%	87%	100%	50%	100%	100%
South Australia	95	100%	95%	92%	85%	83%	-	100%	80%
Tasmania	51	100%	65%	100%	47%	100%	71%	67%	78%
Victoria	132	100%	94%	99%	96%	95%	73%	94%	100%
Nation-wide	672	99%	90%	97%	86%	91%	65%	91%	89%

The great majority of new plant was found to be adequate in this regard, however a large percentage of used grain augers were again found to be deficient.

refer Note page 10.

Table 11 – Are safety signs/decals adequate?

Jurisdiction	Audits	Tractors % adequately marked		Tractor implements %adequately marked		Grain augers % adequately marked		ATV attachments % adequately marked	
		New	Used	New	Used	New	Used	New	Used
New South Wales	100	100%	91%	97%	88%	100%	67%	85%	—
West Australia	135	93%	94%	95%	90%	75%	100%#	—	—
Queensland	159	100%	92%	97%	88%	100%	56%	98%	100%
South Australia	95	100%	93%	89%	92%	80%	—	100%	100%
Tasmania	51	100%	81%	100%	58%	100%	76%	100%	56%
Victoria	132	100%	88%	97%	91%	100%	73%	94%	100%
Nation-wide	672	98%	90%	97%	87%	96%	69%	95%	81%

Safety signs, decals etc in English or international symbols rated highly for both new and used plant, with the exception of used grain augers. Wear and tear on signage, being in positions exposed to weather and large amounts of grain dust, appears to be a main cause of the lack of or inadequate safety signage on used grain augers

refer Note page 10.

Table 12 - Were access to and egress from the tractors and implements (if applicable) found to be adequate?

Jurisdiction	Audits	Tractors % OK access		Tractor implements % OK access	
		New	Used	New	Used
New South Wales	100	98%	100%	100%	100%
West Australia	135	91%	82%	95%	93%
Queensland	159	100%	95%	100%	90%
South Australia	95	100%	98%	91%	82%
Tasmania	51	100%	91%	100%	95%
Victoria	132	100%	96%	97%	92%
Nation-wide	672	97%	93%	97%	91%

Access and egress were found to be adequate for almost all tractors and implements inspected.

5.3 ANALYSIS

5.3.1 Risk Management Systems Generally

The level of application of safety risk assessment and control systems or procedures in place for agricultural plant across Australia indicates sound awareness of and commitment to, by most importers, designers and/or suppliers, ensuring the safety of this plant for users. A lesser standard appears to be evident for used plant, in particular, used grain augers. Lower levels of safety were found for used plant in the specific areas of: provision of manufacturers' operational/safe use manuals, other safety information, appropriate guarding, maintenance records, operator control identification, safety signage and decals.

5.3.2 New Tractors

New tractors were found in between 90% and 99% of cases to be sold with compliant ROPS where required by legislation, other guards and safety devices, pre-sale inspection records, operator manuals, other safety information, operator control markings and safety signage. Full (100%) compliance, however, should be achieved by industry.

5.3.3 Used Tractors

Used tractors were found to also be sold with compliant ROPS, other guards and safety devices, pre-sale inspection records, operator manuals, other safety information, operator control markings and safety signage in the majority of instances. Maintenance records, seat belts and various guards were, however, found to be less adequate than that for new tractors.

5.3.4 New Tractor Attachments

New tractor attachments were found to be sold with compliant guards and safety devices, pre-sale inspection records, operator manuals, other safety information, operator control markings and safety signage, to similar levels as new tractors.

5.3.5 Used Tractor Attachments

Used tractor attachments were found to be less likely than their new equivalents to be sold with compliant guards and safety devices, pre-sale inspection records, operator manuals, other safety information, operator control markings and safety signage. Inspections indicated this to be between 74% and 92% of instances nationwide. Wear and tear, removal of guards and loss of printed information by previous owner/s are suggested as principal reasons for this difference.

To address this situation, the peak industry associations have developed plant risk management systems/procedures. There are also several commercially available systems specifically designed for agricultural plant dealerships, auction houses and similar businesses dealing in plant. These systems have been highlighted to several of the participating jurisdictions and were observed during some field visits.

5.3.6 New Grain Augers

New grain augers were found to meet pre-delivery, guarding, operator manual, other safety information, operator controls and safety signage requirements in between 96 and 98 % of plant inspected. Despite this result, one significant safety failing was noted in some cases, being inadequate guarding of the flights exposed at the intake end of the auger tube. Although there are several designs of rod and wire mesh guards in use, as well as various hopper designs with or without wire mesh guards, many were clearly inadequate and could be either easily removed or be inadequate in some usage situations.

5.3.7 Used Grain Augers

Used grain augers were commonly found to be inadequate in several respects – safety risk assessment before re-sale (66% of the time); maintenance records (63% available); instruction manual provided (58% of the time); safety information provided (71% of the time); adequate guards (51% of the time); operator controls marked (65% of the time) and; safety signage (69% of the time). This is clearly the most unsafe item of plant identified by the program and should be the focus of attention by the safety regulators, manufacturers, importers, designers and suppliers.

5.3.8 New ATV Attachments

New ATV attachments were found to meet requirements for pre-delivery, guarding, operator manual, other safety information, operator controls and safety signage requirements in between 82 and 100 % of plant inspected. However this was a relatively small area of the program, with 90 suppliers visited.

5.3.9 Used ATV Attachments

Nationally, between 74% and 80% of used ATV attachments were assessed by Inspectors as being safe, depending on the specific area inspected, although this was the smallest volume of plant inspected, at only 31 suppliers. As with other plant types, used ATV attachments are less likely to be as safe as new ones, again highlighting the need for businesses to apply a comprehensive risk assessment system for all items they deal in.

6 CONCLUSIONS

Overall, the level of plant safety compliance for items inspected was high, in the order of 80% to 90% or better. This is pleasing given that the program visits appear to have included a very high coverage of the suppliers to the market.

As could be predicted, given the numbers of incidents involving tractors and the focus by safety regulators and industry on improving that area, tractor safety compliance was the highest of the plant types included in the program. Additional focus, however, with the aim of 100% compliance, should be placed by industry in the areas of ROPS, and PTO/PIC guards.

Differences were found between the safety risk assessment regimes used by industry for new compared to that for used plant. There is scope for industry to further access the resources available to it through peak organizations and commercially or alternately to develop internal systems, to increase plant safety across their entire product range.

Used grain augers appear to afford very low levels of safety and are an item that could be further addressed by industry and safety regulators, given their wide usage and the significant injury that can result from incorrect use and/or contact with their moving parts.

The program has attracted a positive response from most of the businesses visited and from their peak Industry groups. Further work with Industry, building on the relationships established by the program, may be an effective way to continue working on agricultural plant safety improvement. In particular, the WorkCover NSW/Industry model aimed at researching and developing risk controls for specific higher-risk plant where current safety performance is inadequate, such as with used grain augers, offers promise to greatly enhance safety outcomes on-farm. This model, known as the *Agricultural Plant Technical Solutions Reference Group*, involves peak Industry groups, WorkCover and specialist technical experts as required, to carry out risk assessment, review and control development.

Continued national collaboration by safety regulators and Industry would appear to be beneficial to drive particular improvements, given the national spread of both agriculture and its plant import, design and supply industry.

7 RECOMMENDATIONS

Recommendations arising from the program are that:

1. Manufacturers, importers and suppliers of agricultural plant implement a comprehensive safety risk assessment and control system for all items they manufacture, import and/or offer for sale. This would cover manufacturers operational/safe use manuals, other safety information, appropriate guarding, maintenance records, operator control identification, safety signage and decals. Used plant is an area for particular attention.
2. Further work be considered by workplace safety authorities and industry to address grain auger safety and tractor attachment safety.
3. The development of a model for workplace safety authorities to work in partnership with manufacturers and peak industry organisations to identify practical solutions to agricultural plant risks be considered. The NSW model, the *Agricultural Plant Technical Solutions Reference Group* may provide guidance in this area. Solutions identified by such groups should be disseminated nationally.
4. All State workplace health and safety regulators continue to work toward national uniformity in regulation, information, assistance and enforcement of agricultural industry safety, in particular the area of agricultural plant. This can be facilitated in the current revision of the *National Standard for Plant*.

8 APPENDICES

8.1 STATE-BY-STATE DEALERSHIP VISIT PROFILES

8.2 STATISTICAL NOTE

8.3 STANDARD FIELD AUDIT VISIT CHECKLIST

8.4 REFERENCES

8.1 STATE-BY-STATE DEALERSHIP VISIT PROFILES

Business Type	NSW	Qld	SA	WA	Tas	Vic	Total
SUPPLIER	70	115	60	78		105	428
not specified in checklist	7				51	4	62
DESIGNER, MANUFACTURER, SUPPLIER	10	17	5			9	41
Manufacturer	3	10	3	20		5	41
Other				28			28
MANUFACTURER, SUPPLIER	3	13	4			6	26
Did not fit Audit Criteria	1		21				22
Importer				9			9
Importer, Supplier	3		1			1	5
Designer, Manufacturer		4					4
DESIGNER						2	2
Importer, supplier, manufacturer	2						2
Agricultural Wrecking	1						1
Auctioneers			1				1
Total	100	159	95	135	51	132	672

8.2 STATISTICAL NOTE

When considering the findings of any survey, including the field audit visits program checklist, it is important to know how representative the findings are.

This is determined by the ratio of the number of businesses surveyed and the total number of businesses of the type being surveyed in the area the survey attempts to cover.

The Tractor and Machinery Association estimated that there were 640 new and used tractor/machinery dealership businesses in Australia, with some operating from more than one location. In total, there are around 800 such business sites nationwide.

The project achieved visits to 672 of these sites, of which:

300 sold new tractors

307 sold used tractors

292 sold new tractor implements

204 sold used tractor implements

61 sold new grain augers

51 sold used grain augers

90 sold new ATV attachments and

31 sold used ATV attachments.

Inspectors visited 84% of the known total supplier businesses. Given these results, it can be stated that the program results appear to be representative of the agricultural plant supply industry in general.

8.3 STANDARD FIELD AUDIT VISIT CHECKLIST

The checklist used has been reproduced here in simplified format, although all questions/inspection areas are included. Figures in the national compliance rate column are the summary results of all States' checklist data. These figures provide an alternative presentation of the program findings to that in the tables in the body of this report – the tables present findings by risk area or risk control measure, while the data below is grouped by plant type.

Answer Type		
1	Inspection Date	
2	Inspector	
3	Company Name	
4	Address	
5	Contact Details	
6	ABN/CAN	
7	Company Type (Manufacturer/Supplier/Importer/Other (specify)	
8	Number of employees	
9	Principal Business Activity	
10	Number of Plant Items inspected	2,502
NEW TRACTOR:		National compliance rate
11	Evidence of an effective risk management process demonstrated	79%
12	New plant: Are pre-delivery inspection records available	93%
13	Is an instruction manual provided with plant	99%
14	Is information provided as to safe/proper use	98%
15	On supply are tractors fitted with ROPS/FOPS (as applicable)	93%
16	Seat belts fitted	97%
17	Tractor PTO master guard fitted	97%
18	Other guards/safety devices fitted	98%
19	Operational controls clearly marked and identifiable	99%
20	Safety signs, decals etc are in English or international symbols	98%
21	Is the access/egress system safe	97%
USED TRACTOR:		
22	Evidence of an effective risk management process demonstrated	74%
23	Are maintenance and inspection records available	77%
24	Is an instruction manual provided with plant	87%
25	Is information provided as to safe/proper use	91%
26	On supply are tractors fitted with ROPS/FOPS (as applicable)	91%
27	Seat belts fitted and operational	80%
28	Tractor PTO master guard fitted	81%
29	Other guards/safety devices fitted	90%
30	Operational controls clearly marked and identifiable	90%
31	Safety signs, decals etc are in English or international symbols	90%
32	Is the access/egress system safe	93%
NEW TRACTOR IMPLEMENT:		
33	Evidence of an effective risk management process demonstrated	82%
34	New plant - Are pre-delivery inspection records available	91%
35	Is an instruction manual provided with plant	95%
36	Is information provided as to safe/proper use	95%
37	PTO power input coupling guard fitted	96%

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38	PTO shaft guard fitted	97%
39	Other guards/safety devices fitted	95%
40	Operational controls clearly marked and identifiable	97%
41	Safety signs, decals etc are in English or international symbols	97%
42	Is the access/egress safe (if applicable)	97%
USED TRACTOR IMPLEMENT:		
43	Evidence of an effective risk management process demonstrated	72%
44	Used plant - Are maintenance and inspection records available	74%
45	Is an instruction manual provided with plant	84%
46	Is information provided as to safe/proper use	92%
47	PTO power input coupling guard fitted	92%
48	PTO shaft guard fitted	86%
49	Other guards/safety devices fitted	86%
50	Operational controls clearly marked and identifiable	86%
51	Safety signs, decals etc are in English or international symbols	87%
52	Is the access/egress safe (if applicable)	91%
NEW GRAIN AUGER:		
53	Evidence of an effective risk management process demonstrated	90%
54	New plant - Are pre-delivery inspection records available	89%
55	Is an instruction manual provided with plant	97%
56	Is information provided as to safe/proper use	98%
57	Are moving parts on the auger effectively guarded	87%
58	Operational controls clearly marked and identifiable	91%
59	Safety signs, decals etc are in English or international symbols	96%
USED GRAIN AUGER:		
60	Evidence of an effective risk management process demonstrated	66%
61	Used plant - Are maintenance and inspection records available	63%
62	Is an instruction manual provided with plant	58%
63	Is information provided as to safe/proper use	71%
64	Are moving parts on the auger effectively guarded	51%
65	Operational controls clearly marked and identifiable	65%
66	Safety signs, decals etc are in English or international symbols	69%
NEW ATTACHMENT FOR ATV:		
67	Evidence of an effective risk assessment process demonstrated	82%
68	New plant - Are pre-delivery inspection records available	86%
69	Is an instruction manual provided with plant	89%
70	Is information provided as to safe/proper use	89%
71	Are moving parts on the ATV attachment effectively guarded	100%
72	Operational controls clearly marked and identifiable	91%
73	Safety signs, decals etc are in English or international symbols	95%
USED ATTACHMENT FOR ATV:		
74	Evidence of an effective risk management process demonstrated	85%
75	Used plant - Are maintenance and inspection records available	86%
76	Is an instruction manual provided with plant	74%
77	Is information provided as to safe/proper use	87%
78	Are moving parts on the ATV attachment effectively guarded	80%
79	Operational controls clearly marked and identifiable	89%
80	Safety signs, decals etc are in English or international symbols	81%

8.4 REFERENCES

The following documents proscribe nationally applicable requirements for plant of the types inspected in this Program. Inspections were also guided in each State by that State's occupational health and safety legislation.

<i>National Standard for Plant : NOHSC 1010 (1994)</i>
AS/NZS 2153.1:1997 Tractors and machinery for agriculture and forestry - Technical means for ensuring safety - General
AS/NZS 2153.3:1997 Tractors and machinery for agriculture and forestry - Technical means for ensuring safety - Tractors
AS/NZS 2153.5:1997 Tractors and machinery for agriculture and forestry - Technical means for ensuring safety - Power-driven soil-working equipment
AS/NZS 2153.6:1998 Tractors and machinery for agriculture and forestry - Technical means for ensuring safety - Equipment for crop protection
AS/NZS 2153.9:1997 Tractors and machinery for agriculture and forestry - technical means for ensuring safety - equipment for sowing, planting and distributing fertilizers
AS 1636.1—1996 Tractors -Roll-over protective structures -Criteria and tests Part 1: Conventional tractors
AS 1636.2-1996 Tractors - Roll-over protective structures - Criteria and tests - Rear-mounted for narrow-track tractors
AS 1636.3-1996 Tractors - Roll-over protective structures - Criteria and tests - Mid-mounted for narrow-track tractors