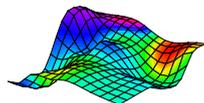


Report to

Australian Wool Innovation

**Benefit Cost Analysis of AWI's
Shearer and Wool Handler
Training Investment**

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BACKGROUND

BDA Group was commissioned by AWI to complete a benefit cost analysis (BCA) of their investment in Shearer and Wool Handler (SWH) training. Investment in this area over 2012/13 was made under the On-Farm Strategy (2): Wool Harvesting & Clip Quality; Program (1) Shearer and Wool Handler Training. AWI has continued investment in SWH Training under the current 2013-16 Strategic Plan.

The analysis was completed with the primary purpose of providing a robust assessment of the potential returns to Australian woolgrowers from that investment and forms part of the series of AWI investment evaluation reports. These analyses are publically available from AWI¹ and apart from reporting the return on investment to shareholders support the on-going process of strengthening investment planning and reporting across the organisation.

INVESTMENT

Investment made by AWI in SWH Training in 2012/13 totalled \$2.1m (\$2.2m in current dollars) including operational costs² and involved 16 separate projects. Investment was made in three key areas.

- 1 Trainer Support - Approximately 15% of the total investment was made to build capability of trainers including facilitating exchanges between States, support of the National Consistency Workshop, production and delivery of training resources and supply of uniforms to trainers.
- 2 Competitions - Some 17% of the total investment was in supporting shearers and judges involved in regional, state and national competitions³.
- 3 Training Delivery- The majority of funds (68%) were invested in In-Shed training for working shearers and wool handlers and support of recruitment programs such as Shearing Industry Vocational Education Training in schools (SIVETS).

The Training Delivery component seeks to provide free training to novice, improver and professional shearers and wool handlers. This is achieved through funding support for In-Shed training opportunities for both shearers and wool handlers, with trainers contracted from registered training organisations (RTOs)⁴. AWI also provides information on sheep handling and the design and construction of shearing

¹ <http://www.wool.com/en/about-AWI/how-we-consult/measuring-performance>.

² Operational costs were estimated at 30 cents on every dollar contracted through individual projects.

³ Includes support to Sports Shear Australia Association.

⁴ These organisations deliver Australian Government accredited Certificate courses in shearing and wool handling / classing.

sheds, yards and accommodation quarters. AWI also makes available work health and safety resources to industry members.

In 2013, 805 students enrolled in a Certificate level shearer course through RTOs and 1,254 enrolled in a wool handling course, with total enrolments increasing since 2009. While employment figures are unavailable for wool handlers, in the 2011 census 3,108 people were employed as shearers with 91% working full-time⁵.

TABLE 1: AUSTRALIAN ENROLMENTS IN SHEARER AND WOOL HANDLING CERTIFICATE COURSES (RTOs).

Course	2009	2010	2011	2012	2013
Shearer					
Certificate 2	190	200	157	385	444
Certificate 3	467	320	329	364	361
Certificate 4	8	8	14	5	0
Total	665	528	500	754	805
Wool Handling / Classing					
Certificate 2	155	305	226	378	572
Certificate 3	113	176	150	194	209
Certificate 4	380	314	330	370	473
Total	648	795	706	942	1,254

Source: National Centre for Vocational Education Research.

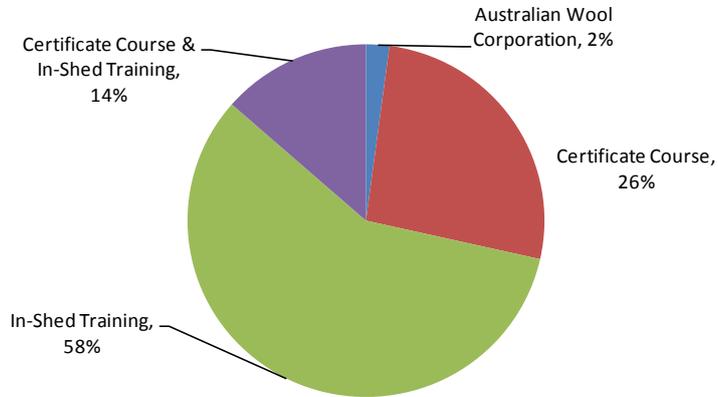
In 2012/13 AWI supported SWH training for 3,340 people, including 1,571 participating in In-Shed shearer training, 983 participating in In-Shed wool handler training and 786 participating in a range of events such as crutching workshops and vocational education in schools. For participating shearers 58% had participated in previous AWI In-Shed training days, 60% were over 24 years of age, 51% had less than 5 years experience and 17% had participated in two or more training days in that year⁶.

⁵ 2011 Census data and employment statistics from Department of Employment (www.joboutlook.gov.au).

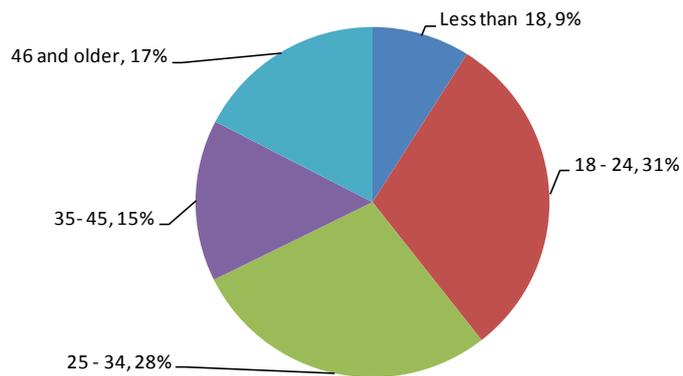
⁶ Participant data was collected from AWI's participant information database. Percentages provided relate to 2013-14 as there was not a full data set for 2012-13. A comparison against available participant data from 2009 to 2012 indicated a similar distribution.

FIGURE 1: SHEARER PARTICIPATION DATA

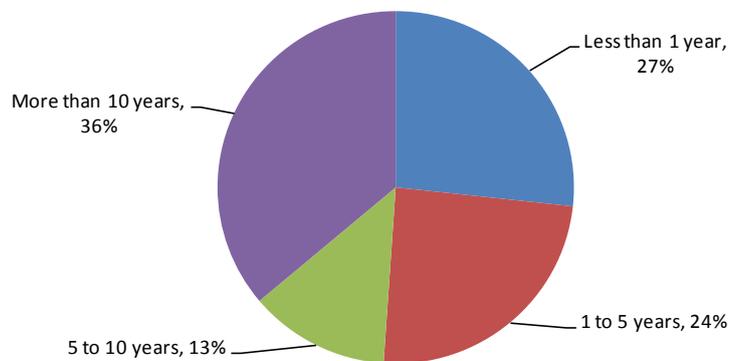
Previous Training



Age (years)



Experience



BENEFITS

Investment through the SWH Training program seeks to increase the productivity and profitability of Australian wool growing operations through improved shearers and wool handler skills. AWI's investment helps to attract new entrants to the industry and provides practical learning opportunities for industry professionals to enhance their skills above and beyond that which is able to be provided through formal government supported courses (Certificate courses).

While building the capacity of professional shearers and wool handlers delivers increased speed (tallies) and better shorn fleece quality, there are also health and safety benefits such as increased longevity in the workforce and reduced injury levels.

In this evaluation only the delivered benefits from building the capacity of shearers and wool handlers is quantified. To a large extent speed and quality are interlinked, and typically speed is moderated to ensure that minimal stress is imposed on stock as well as skin cuts and second cuts of wool. Professional shearers can shear 120 or more sheep a day and at an accepted fleece quality. Less experienced shearers will shear less sheep a day to ensure that quality standards are achieved⁷. If shearing speed is increased without compromising fleece quality then shed productivity will improve as long as wool handlers can handle the increased number of fleeces a day.

The economic incentive for shearing teams is based around the number of sheep shorn while the incentive for improved quality lies with the woolgrower, who face premiums and discounts based on fleece quality. SWH training is focussed on both speed and quality, therefore improving both shearer and woolgrower outcomes than would otherwise be the case.

Economic benefits of increased shed productivity, assuming no loss in fleece quality, are generated if the number of runs required to complete shearing on a property are reduced. These benefits include reduced costs to woolgrowers:

- (1) Apart from shearers who are paid on the basis of their daily tally, other members of the shearing team are paid on a per run or per day basis (including a minimum of 2 runs a day). If shearers achieve an increase in their daily then the number of runs per property will be reduced⁸.
- (2) Wool growers allocate farm hands to muster and pen sheep (typically a minimum of 2 people) and a shorter shearing period would enable this labour to be allocated to other activities on the property. That is, required labour has an opportunity cost.

⁷ While there is no mandated industry standard for shearers, competition quality requirements used by Sports Shear Australia provides a generally accepted guideline to fleece quality for professional shearers.

⁸ The primary driver for achieving increased speed are shearers who can increase their daily pay rate as a result.

(3) Sheep would be penned for a shorter period of time with commensurate savings in supplementary feed.

For the purpose of this evaluation only the first two benefits noted above have been quantified.

Shed Productivity Cost Saving

A typical shearing team includes four shearers, one classer, one presser, two shed hands and one cook. Apart from shearers the cost of the team per run would be \$308.97 based on the 2010 Pastoral Award (as at July 1 2014). Allocated farm hands (Level 3 in the Pastoral Award) would increase this cost to \$378.47 per run.

The average number of runs per property in 2013/14 was estimated at 25.29, based on 76m sheep shorn across 25,091 properties by teams of four shearers shearing on average 120 sheep each per day and four runs per day⁹. If teams are paid on a per run basis then 62% of properties would have an average of 24 runs paid and 38% of properties would have 26 runs paid¹⁰. The total annual industry cost apart from payment to shearers would be \$243.3m.

If the AWI investment were to increase shearer tallies without compromising binned fleece quality then the average number of sheep shorn per day (with increased daily shed throughput managed by wool handlers) then more properties would have less runs and consequently lower shearing team costs. An increase in the average daily tally for shearers of one sheep shorn would lead to a reduction in average annual shed costs across the industry of some \$990k. These cost savings would be enjoyed for as long as the shearers remained in the industry or needed to update their skills again, and for the purpose of this evaluation a ten year period was selected. On this basis, the increase would deliver a total benefit to Australian wool growers of \$5.7m (in present value terms¹¹).

To determine the extent to which AWI's investment in SWH Training has increased shearer tallies a survey was carried out across a sample of shearers participating in AWI In-Shed training days during 2013/14. The survey was run as an email survey from the 11th to 29th September 2014 with results summarised below¹². Overall, participants found the training valuable with a majority of participants being able to improve both their daily tally and quality of shearing (57%).

⁹ Background data provided by AWI staff.

¹⁰ Mathematically expressed as $Rlx + Rhy = z$; where $Rh - RI = 2$, $x + y = 1$, $RI \leq z \leq Rh$ and Rh , and RI are whole and even numbers and where z is the average number of runs per property across the industry, RI is the average number of runs per property below the industry average and Rh is the average number of runs per property above the industry average.

¹¹ A discount rate of 5% was used. A capture rate of 75% of benefits was used as increased supply would lead to a decrease in greasy wool prices – 2012 BDA Group report to AWI, "Quantifying Benefits to Australian Wool Growers from AWI investments: Methods".

¹² The survey was sent to 358 recorded email addresses of shearers who had participated in AWI funded training over 2013/14. Of these 270 were valid and a completion rate of 28% was achieved.

TABLE 2: SHEARER SURVEY RESULTS

Question	Yes	No
Was the training valuable to you?	96%	4%
Are you still working as a shearer?	82%	18%
If working, are you working with a contractor?	62%	28%
Has the quality of your shearing improved?	79%	21%
Have you increased your daily tally?	60%	40%

Note: 57% of participants increased both their daily tallies and quality of shearing, 21% had no increase in their daily tally, but had improved the quality of their shearing and the remainder had no change in either tallies or quality.

Participants were also asked to report the increase in their average daily tally that they had achieved since the training. Reported increases ranged from 2 to 120 with a median of 20. To derive an average industry increase, shearers with less than 1 years experience were excluded as much of their reported increase would have been achieved anyway as a result of gaining work experience in their normal employment. Further, shearers with more than 5 years experience were also excluded as the benefits from the AWI training are likely to be mainly confined to improvements in the quality of their shearing¹³. The increase in the average daily tally of the remaining shearers was 10 sheep per day. Across the industry (all shearers) this represents an increase of 1 sheep per shearer per day¹⁴.

Shed Productivity Quality

The estimated increase in the average daily tally of shearers attributed to the 2013/14 AWI In-Shed training investment has been estimated at 1 sheep per shearer per day. This translates to an industry benefit of \$5.7m in present value terms. This benefit is only realised if the quality of shearing has not decreased as shearers strive to increase their daily tally. While the survey of shearers has indicated that quality has been maintained, if not increased, an attempt was made to cross-check this from non-training participant sources.

In the AWI 2013-16 Strategic Plan an assessment of quality is to be made through an examination of improvements in Sports Shear Australia judging standards, as indicated by trends in competition results through time. National results were analysed back to 2004 but no obvious trend in quality was identified. This might be due to differences in competition structures (such as the number of sheep shorn) as well as differences in the types of sheep presented to shearers.

¹³ This might lead to an underestimation of benefits because these shearers in normal employment would most likely operate on lower tallies to ensure fleece quality is maintained.

¹⁴ On the basis that 25% of participants achieved an increase in their average daily tally as a result of the AWI training and 40% of working shearers (estimated at 3,200 in 2013/14) had received In-Shed training.

Another approach was followed where shearing contractors were asked to provide their assessment of changes in shearing productivity and quality through time. AWI staff developed a contractor's survey which was distributed by the Australian Shearing Contractor's Association and the WA Shearing Industry Association. The survey was run during September 2014.

Results from the shearing contractor's survey indicated that 54% of contractors thought that average daily shearing tally rates had increased through time and 75% thought that the quality of shearing was much the same or had improved over the past few years. These results are broadly consistent with feedback from training participants, where more experienced shearers typically undertaking training to improve their shearing quality while the more inexperienced shearers tend to improve both their shearing speed and quality. Without access to In-Shed training for working shearers these quality improvements are unlikely to be realised.

For the purpose of this evaluation it was concluded that In-Shed training has resulted in an improvement in shearing quality for participants and as such the estimated benefit from an increased average daily tally will provide a suitable baseline upon which investment returns can be determined.

PAYOFF

In this section the estimated pay off on the AWI investment is reported. Measures are reported in Table 3. It was estimated that the AWI investment will generate benefits to Australian wool growers of \$5.7m in present value terms. This represents a return of \$2.60 on every dollar invested by AWI in the SWH Training program in 2012/13.

TABLE 3: INVESTMENT PERFORMANCE MEASURES

Measure	Result
Present Value of Benefits	\$5.7m
Present Value of Costs	\$2.2m
Net Present Value)	\$3.5m
Benefit Cost Ratio	2.6

CONCLUSION

AWI's SWH training provides training opportunities for working shearers and wool handlers to improve their skills. Although there is considerable investment made by the Australian and State governments in delivering Certificate courses to students, the In-Shed training provides an opportunity to hone these

skills further and to enable experienced shearers and wool handlers to maintain and enhance their work productivity further. Over 90% of contractors surveyed reported that In-Shed training during normal operations was the best way to deliver training for shearers and wool handlers (although the opportunities for training could be increased).

It was estimated that the AWI investment over 2012/13 in SWH training has generated a positive return on investment for Australian woolgrowers. The net return was estimated at \$3.5m. Gains were estimated on the basis of increased shearing speeds without a loss in shearing quality. While it was noted that training outcomes may also lead to the improved health and safety of shearers and their teams, these benefits were not quantified.

As part of the evaluation two surveys were developed and run. One was across participants in AWI In-Shed shearer training and the other across shearing contractors. This survey approach should provide AWI with a facility to measure and monitor progress against their stated 2013-14 investment targets and could be expanded to include feedback from participants in AWI In-Shed wool handler training.