INVESTIGATING THE FEASIBILITY OF USER-PAYS LOADING AND UNLOADING INFRASTRUCTURE

12 May 2020

ALRTA
Australian Livestock and Rural Transporters Association

ACKNOWLEDGEMENTS

Australian Livestock and Rural Transporters Association

The Australian Livestock and Rural Transporters Association (ALRTA) is the peak body representing road transport businesses servicing the agriculture supply chain. The ALRTA is a federation of six state associations including:

- Livestock, Bulk and Rural Carriers Association of New South Wales.
- Livestock and Rural Transporters Association of Victoria.
- Livestock and Rural Transporters Association of South Australia.
- Livestock and Rural Transporters Association of Western Australia.
- Livestock and Rural Transporters Association of Queensland.
- Livestock Transporters Association of Tasmania.

Together these associations represent over 700 transport businesses including owner-drivers, small fleet operators and large fleet operators with hundreds of trucks and trailers.

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Kilcoy Global Foods

Kilcoy Global Foods Limited is an international company with centres in Australia, China and the USA. The Kilcoy meat processing facility, operated by Kilcoy Global Foods Australia (KGF), located just outside of Kilcoy in south east Queensland, has operated since 1953. The facility employs over 1,600 staff processing an average of 1,400 head of cattle daily. Exports account for 70-80% of production while 20-30% is consumed domestically.

ProWay

ProWay Livestock Equipment has 20 years' experience in working with corporate and private farms, livestock feedlots, abattoirs and commercial sale yards across Australia and internationally to design, manufacture and deliver livestock handling facilities. ProWay is an Australian company with a head office based in Wagga Wagga NSW. All of ProWay's custom designed products are manufactured in Australia.

Heavy Vehicle Safety and Productivity Initiative

The Heavy Vehicle Safety Initiative (HVSI) is a grants program funded by the Federal Government and administered by the National Heavy Vehicle Regulator (NHVR) to deliver safety benefits for the heavy vehicle industry and other road users.

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EXECUTIVE SUMMARY

Loading and unloading livestock is a high-risk activity. Under workplace health and safety laws, livestock facilities may be liable for injuries to handlers including slips, trips, falls, cuts, bruising and abrasions.

Safety risks can be greatly reduced by the installation of moveable gantries, providing safe access to livestock crates and loading ramps. There is, however, a cost involved in constructing and maintaining such equipment which typically falls on the facility owner.

The Australian Livestock and Rural Transporters Association (ALRTA) is the peak body representing road transport businesses servicing the agricultural supply chain. ALRTA has demonstrated that transport businesses are willing to contribute to the cost of gantries via a user-pay system.

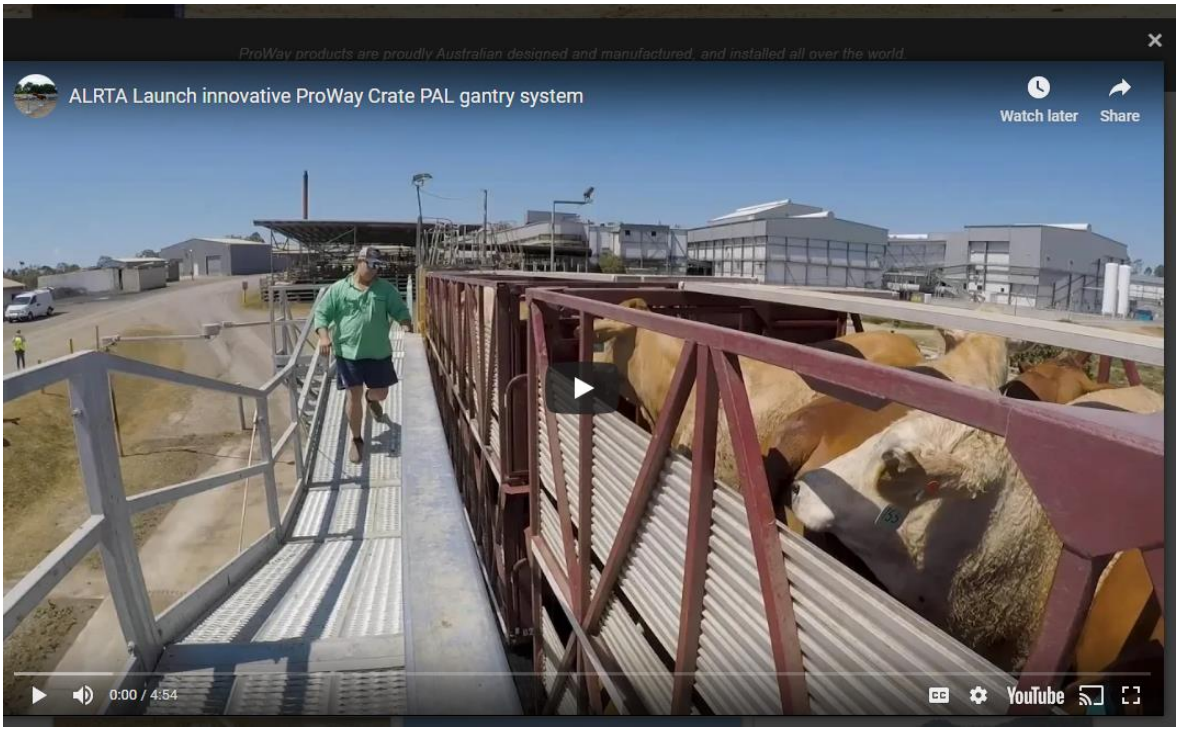
Depending on the type of gantry installed and average daily usage rates, installation and maintenance costs can typically be fully recovered by a livestock facility in less than three years.

This report outlines the results of a user-pay research trial undertaken by ALRTA at Kilcoy Global Foods Australia (KGF) with funding support provided by the National Heavy Vehicle Regulator (NHVR).

ALRTA recommends that livestock facilities consider the user-pay option as a means of fast-tracking the installation of loading or unloading gantries.

More Information

Click the image below or visit: https://www.youtube.com/watch?v=k3wTAy5aPdM



1.0 INTRODUCTION

1.1 Project Summary

Loading and unloading livestock is a high-risk activity. Under workplace health and safety laws livestock facilities may be liable for injuries to handlers including slips, trips, falls, cuts, bruising and abrasions.

Safety risks can be greatly reduced by the installation of moveable gantries providing safe access to livestock crates and loading ramps. However, there are costs involved in constructing and maintaining such equipment which typically fall on the facility owner. As a result, safety and productivity improvements often lag behind what could be achieved if costs were shared more equitably among supply chain parties.

In 2019, the Australian Livestock and Rural Transporters Association (ALRTA) partnered with Kilcoy Global Foods Australia (KGF) to undertake an innovative research trial to explore the potential of a 'user-pay' system to facilitate more rapid uptake of safer unloading infrastructure at major livestock depots across Australia. The project was funded by the National Heavy Vehicle Regulator (NHVR).

The trial involved:

- Installation of a ProWay Crate Pivoting/Parallel Access Landing (P.A.L.) alongside the main unloading ramp at KGF.
- Application of a voluntary usage charge that was progressively reduced over a 12-week period.
- Collection and analysis of data on Crate P.A.L. usage rates at different pricing points.
- Determination of cost recovery periods at different pricing points.

The trial found that:

- It is feasible to operate a Crate P.A.L. on a user-pay basis.
- There is a typical supply/demand relationship between user prices and usage rates (i.e. usage rates increase as the price per use is decreased).
- At the KGF site the optimum price was $10.00 per use with a cost recovery period of 2.6 years.
- At other sites, installation, maintenance and charging costs could typically be fully recovered in less than three years.
- User-pay is likely to be feasible at all sites with more than 15 truck deliveries per day.
- Installation of a Crate P.A.L. improves unloading safety without reducing efficiency.

Use of the fully funded Crate P.A.L. is now compulsory at the KGF site with fees no longer applicable.

1.2 Project Aim

The primary aim of the project was to investigate the viability of a user-pay funding mechanism to incentivise rapid improvement in loading and unloading infrastructure throughout the livestock road transport supply chain.

1.3 Project Funding

The project received a total of $102,000 (ex GST) in grant funding from the Federal Government via the National Heavy Vehicle Regulator's (NHVR) *Heavy Vehicle Safety Initiative 2017-18*. Other costs associated with administration and operation of the project were contributed 'in kind' by the ALRTA and KGF.

2.0 METHODOLOGY

2.1 The Site

Kilcoy Global Foods Australia (KGF) is an export focussed cattle processor located in Kilcoy, Queensland. KGF processes an average of 1400 animals per day, 7 days a week, and receives on average 23 B-doubles daily. There is one primary over and under unloading ramp servicing the facility. Vehicles enter the site by driving past the side of the ramp before reversing into a rear-unloading docking position.

2.2 The Crate P.A.L.

The Crate P.A.L. moveable gantry, designed by ProWay, is acknowledged as a best practice safety innovation in livestock unloading at high volume destinations. The frame's platforms and gates provide users with safe access to the side panels and gates of livestock crates, keeping people and animals separated at all times. The Crate P.A.L.'s walkways, stairways and handrails comply with Australian Standards and the gantry is quick to engage and disengage, it is driven by an electric motor that moves the frame to and from the side of trailers. The Crate P.A.L. is designed to be used on level ground with the wheels running on either concrete, bitumen or compacted gravel.

Figure 1: *The Parallel Crate P.A.L. at Kilcoy Global Foods Australia.*

There are two types of Crate P.A.L.:

- A **pivoting** version ($50,284 GST incl) with a fixed pivoting point at the base of the unloading ramp. The Crate P.A.L. swings away from the unloading area while the vehicle backs up to the ramp.
- A **fully retractable** version ($57,115 GST incl) that can move in and out while remaining parallel to the ramp and vehicle. The parallel version has wheels at both ends with sensors located in the control arm to guide movement.

To see a Crate P.A.L. in operation: https://www.youtube.com/watch?time_continue=6&v=Qqr6di8oY_o

The fully retractable version was first designed and constructed as part of this project to overcome challenges associated with the KGF site layout. A pivoting Crate P.A.L. would have blocked existing road access to the ramp while in a retracted position. The fully retractable version provides clear access for vehicles to approach between the ramp and the Crate P.A.L. The availability of two types of Crate P.A.L. provides versatility to accommodate different types of unloading depots.

2.3 Site Preparation

Site preparation work included:

- Concrete for pivot post footing (0.3 cubic metres of 25mpa concrete).
- Construction of a concrete pad.
- Provision of electricity to site (i.e. 20 amp, 3 phase power).
- Connection of power supply.
- Installation of operational signage.
- Exclusion fencing to the work site during the period of construction.
- Lifting equipment and a competent operator of a forklift or telehandler for unloading the materials and for use during construction.
- Lighting to provide safe operator access at night.
- Location and marking of underground services affected by post footing (600mm wide and 800mm deep).

2.4 The User-Pay Charging System

User charges were levied via an Avdata system attached to the Crate P.A.L. The Avdata unit cost $2,873 (GST incl) to install. Operational signage installed on site was an additional $132 (GST incl).

This system was chosen because most livestock transporters already have Avdata accounts and an electronic key in order to access truckwashes around Australia.

Once the driver has reversed up to the ramp, the electronic key is used to activate the Crate P.A.L. so it can be moved alongside the vehicle. The usage charge is added to user's existing monthly account.

2.5 Determination of Price

Workplace Health and Safety Queensland advised ALRTA that charging systems can be used to provide safety equipment provided that charges are not so high as to prevent the use of the equipment.

In 2017 and 2018, ALRTA conducted two member surveys to ascertain the likely range of charges that transport operators would be willing to pay to use a Crate P.A.L.

The surveys indicated that:

- 2% of operators were willing to pay $20.00 or more per use.
- 82% of operators were willing to pay a price between $2.50 and $15.00.
- 16% of operators would not pay at any price (some respondents would not use it even if free).

On the basis of the surveys and Workplace Health and Safety Queensland advice, the trial price was capped at $15.00 (incl GST). The schedule of pricing during the trial is contained in Table 1.

Week 1-2	Week 3-4	Week 5-6	Week 7-8	Week 9-10	Week 11-12
$15.00	$12.50	$10.00	$7.50	$5.00	$2.50

Table 1: *Crate P.A.L. Pricing Schedule (incl GST).*

Usage of the Crate P.A.L. was encouraged but entirely voluntary throughout the trial period.

Figure 2: *Signage on the Crate P.A.L. showing pricing during the trial period.*

2.6 Communication

Prior to the trial commencing, the following communication activities were undertaken:

- KGF sent a letter concerning the trial to all known users of the unloading ramp.
- Signage was installed on the Crate P.A.L. outlining the project, instructions for using the Crate P.A.L., pricing and where to obtain assistance if needed.
- KGF undertook site inductions with all staff and potential new users of the Crate P.A.L.

Figure 3: *Signage installed at control panel of the Crate P.A.L.*

An official launch and media release were also undertaken during the trial involving the Federal Assistant Minister for Road Safety and Freight Transport (the Hon. Scott Buchholz MP), NHVR CEO, KGF Chief Operating Officer, LRTAQ Vice President, ALRTA Executive Director and several local transport operators.

2.7 Baseline Efficiency Data

ALRTA conducted two observational surveys of unloading times at KGF. The first survey was conducted 14-15 November 2018 (prior to the installation of the P.A.L. frame) and the second on 13 December 2019 with the P.A.L. frame in operation during the voluntary trial period.

2.8 Conducting the Trial

The data collection phase of the trial commenced on 2 September 2019 and was completed on 16 December 2019.

The initial usage price of $15.00 was progressively reduced by $2.50 every two weeks until reaching zero, at which time the trial was completed. A technical glitch occurred during week 10 which rendered the Crate P.A.L. inoperable for almost two weeks. The planned 12-week trial period was therefore extended to 14 weeks to enable collection of adequate data over each pricing point.

During the trial period, KGF provided information to ALRTA concerning the total number of truck deliveries each day while AVDATA collected and supplied information concerning each use of the Crate P.A.L.

3.0 RESULTS

3.1 Equipment and Site Costs

A summary of Crate P.A.L. equipment installation and site preparation costs are summarised in Table 2.

Item	Cost (GST incl)	Notes
Set up costs		
P.A.L. frame	$50,284	Supplied by ProWay Pty Ltd
P.A.L. frame modifications	$6,831	Supplied by ProWay Pty Ltd
Avdata unit	$2,873	Supplied by Avdata Australia and installed by ProWay
Power	$3,520	Supplied by KGF
Concrete pad	$20,900	Supplied by KGF
Operational signage	$132	Supplied by KGF
Subtotal	***$84,540***	
Avdata service maintenance costs		
Avdata SIM card	$83	3 months supply
Avdata services	$878	3 months service
Subtotal	***$961***	
Total	**$85,501**	

Table 2: *Summary of Equipment Installation and Site Preparation Costs.*

It should be noted that KGF provided 'in kind' services including concreting of pivot post, provision of electricity to site, lifting equipment and ground marking. Lighting was already provided at the site.

3.2 Maintenance Costs

Feedback from ProWay, based on their experience with existing Crate P.A.L. facilities in Geelong, Casino and elsewhere is that maintenance costs can be estimated as follows:

- **Visual check:** 30 minutes, once a month - $480 per year.
- **Grease bearings:** 20 mins once every 3 months - $120 per year.
- **Change oil in gearbox:** once every 2 years - $100 i.e. $50 per year.
- **Electricity:** $150 per year (estimated by ALRTA).

Total annual maintenance costs are estimated at $800.

3.3 Safety

There were no safety incidents reported in relation to use of the Crate P.A.L.

Feedback from people who used the Parallel Crate P.A.L. at KGF during the trial confirms that the gantry is easy to use and improves safety. The frame separates people from animals and alleviates the need to climb onto the side or the top catwalk of trailers to unload cattle. This high-risk activity can be particularly dangerous in cold, wet weather. Users reported less strain on their legs, especially their knees when using the Crate P.A.L. and said that this type of infrastructure could extend their working life in the livestock transport industry by at least five years.

Heavy vehicle driver fatigue is also an important consideration in planning for safe and efficient transport activities. Drivers who unloaded using the Crate P.A.L. expended less energy and were less stressed during the unloading process due to the ease of accessing the top deck and lower personal safety risk while handling livestock from within the enclosed gantry system.

3.4 Animal Welfare

According to the National Land Transport Standards[1] "*At all times, livestock must be handled to prevent injury and minimises(sic) stress. These principles apply to all journeys involving livestock*." The Land Transport Standards also state that "*The chain of responsibility for livestock welfare in transport begins with the owner or their agent, and extends to the final receiver of the livestock*." Animal welfare is therefore an important consideration in the provision of safe loading and unloading facilities. ALRTA's National Animal Welfare Policy[2] therefore recommends (see Principle 5) the installation of "innovative supporting infrastructure that improves safety, animal welfare and efficiency at loading and unloading sites."

Users of the Crate P.A.L. reported that the animals were less stressed when unloaded using the gantry because people were not climbing on top of livestock.

3.5 Efficiency

Observations prior to installation of the Crate P.A.L. indicated that unloading times for B-doubles ranged between 2 minutes and 9 minutes. The observer noted that drivers who arrived in close succession sometimes helped one another to unload, significantly decreasing unloading times in those instances.

During the trial period, unloading times ranged between 8 minutes and 12 minutes for persons not using the Crate P.A.L. Persons using the Crate P.A.L. unloaded between 9 minutes and 11.5 minutes. There were no instances observed in which drivers assisted one another to unload.

Generally, it appears that usage of the Crate P.A.L. has a negligible impact on overall unloading efficiency.

[1] Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock (2012)
[2] ALRTA-National-Animal-Welfare-Policy (2016)

3.6 Willingness to Pay

The Crate P.A.L. usage rates at the various pricing points during the trial are illustrated in Figure 4.

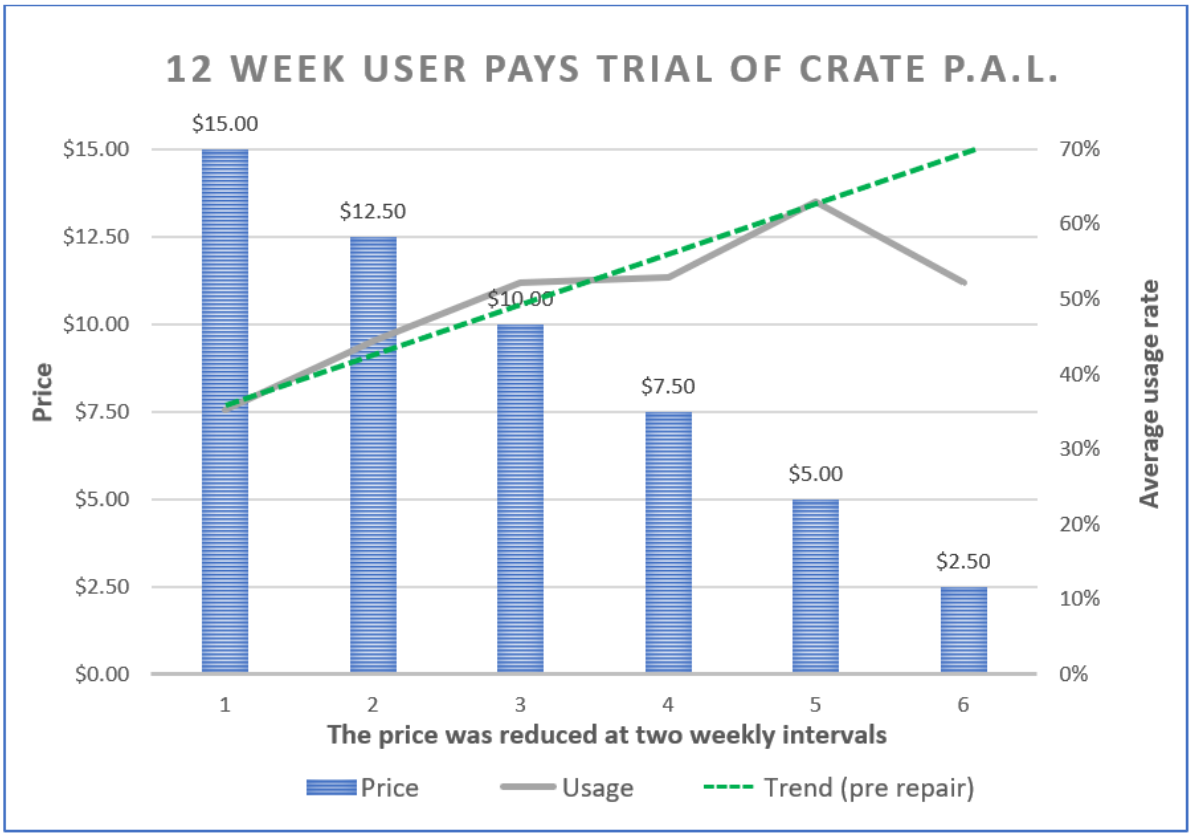


Figure 4: *Crate P.A.L. Usage Rates and Various Pricing Points (prices Incl GST).*

Around 36% of transport operators were willing to pay the initial price of $15.00. This result was higher than expected compared with surveys that had previously indicated only around 12% of operators were willing to pay $15.00 (or more).

In line with survey data, trial usage rates generally increased as the price was decreased. However, there was some variation over time, with usage rates occasionally falling while the price remained constant (e.g. during weeks 5 & 6 when the price remained at $10.00. It should be noted that week 5 included the October long weekend in Queensland when a total of 17 B-doubles were received at KGF on the Saturday and Sunday instead of the average 46 in two days).

Usage rates peaked at 63% during week 10 at a price of $5.00 per use.

Unfortunately, it was at this point that a technical glitch rendered the Crate P.A.L. unusable for almost two weeks. When the trial recommenced, the usage rate fell to just over 50% even though the price was reduced to $2.50. This is likely due to some operators being unsure if the Crate P.A.L. was working. If the glitch had not occurred, it appears likely a voluntary usage rate in excess of 70% would have been achieved, based on data trend projections and survey results.

Anecdotally, other factors affecting the usage rate included: driver adaptability, positive word of mouth, feedback about the P.A.L. frame's safety and efficiency and whether drivers had access to an Avdata key. Drivers were more likely to use the Crate P.A.L. if they had previously seen it in use and were aware that it did not significantly affect unloading times.

In general terms, the trial demonstrated that approximately:

- One third of users were willing to pay the maximum trial price of $15.
- One third of users were willing to pay an amount but are price sensitive.
- One third of users will not pay.

3.7 Cost Recovery Analysis: Assumptions

The following assumptions were used when considering cost recovery scenarios:

- Crate P.A.L. freight, installation, including Avdata system and operational cost of $53,289 (GST inclusive) for a pivot version and $84,550 (GST inclusive) for a retractable version on a new concrete pad.
- Maintenance costs as per ProWay estimates i.e. $650 per year plus electricity.
- A consistent average number of trucks deliver to the facility (e.g. 23 per day at KGF).
- 7 days per week operation for 50 weeks per year (i.e. two week Christmas closedown period).
- GST, Avdata and LSRI[3] costs remain the same over the cost recovery period.
- No shut down for maintenance or breakdown.
- Usage rates for the $2.50 price point have been extrapolated from trend data and operator surveys (due to the impact of the Crate P.A.L. technical failure on the data series).

3.8 Cost Recovery at KGF

Based on cost information and monies collected during the trial period, Table 3 illustrates the likely period (in years) to achieve full cost recovery at the KGF site under three scenarios:

1. Installation of the Parallel Crate P.A.L. plus full concreting of the operational area.
2. Installation of a Parallel Crate P.A.L.
3. Installation of a standard Pivot Crate P.A.L.

User Charge	Usage Rate	Parallel & Concrete P.A.L.	Parallel Crate P.A.L.	Pivot Crate P.A.L.
$2.50	**70%***	8.1	6.1	5.1
$5.00	**63%**	4.4	3.3	2.8
$7.50	**53%**	3.4	2.6	2.2
$10.00	**52%**	2.6	2.0	1.6
$12.50	**44%**	2.4	1.8	1.5
$15.00	**36%**	2.5	1.9	1.6

Table 3: *Cost recovery period at KGF (years) for different set up scenarios.* **Extrapolated from trend and survey data.*

Under the actual KGF trial scenario (involving a Parallel Crate P.A.L. and full concreting) the shortest payback period of 2.4 years occurred at a price of $12.50 per use. However, as there was a strong inverse correlation between prices and usage rates at higher price points, there was little difference between payback periods for the prices of $15.00 (2.5 years), $12.50 (2.4 years) and $10.00 (2.6 years).

[3] LSRI - a 2% levy collected by Avdata and paid to Livestock Research and Innovations Inc. to support Livestock Services Research and Innovations projects

Determining an *optimum* price requires a careful balance between the desire of a Crate P.A.L. user to pay the lowest possible amount and the desire of a Crate P.A.L. owner to achieve the shortest payback period.

The optimum price that best balances these competing interests was $10.00 per use with a payback period of 2.6 years.

Under lower cost scenarios that might have applied if KGF already had concrete around the unloading area and/or was able to utilise a standard pivoting Crate P.A.L.:

- An optimum price of $7.50 per use would achieve the same payback period of 2.6 years if concrete was not needed at the KGF site.
- An optimum price of $5.00 would achieve a marginally longer payback period of 2.8 years if a standard Pivot Crate P.A.L. without concrete could have been installed.

The three 'optimum' payback price points for each cost scenario are shown as green cells in Table 3.

3.9 Application of Results to Other Sites

Based on the optimum price points and cost recovery periods evident during the KGF trial, it appears likely that a cost recovery period of three years (or less) would be a reasonable benchmark for application at other sites considering installation of a user-pay Crate P.A.L.

Of course, some important factors may vary across different sites including the average number of daily truck deliveries and the type of Crate P.A.L. installation that is required. Tables 4 – 6 illustrate the likely cost recovery outcomes under a range of scenarios.

3.9.1 Option 1: Pivot Crate P.A.L. (Cheapest Option)

		Number of Trucks Per Day						
User Charge	**Usage Rate**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
$2.50	**70%**	13.0	8.2	6.0	4.7	3.9	3.3	2.9
$5.00	**63%**	6.7	4.3	3.2	2.5	2.1	1.8	1.6
$7.50	**53%**	5.2	3.4	2.5	2.0	1.6	1.4	1.2
$10.00	**52%**	3.9	2.5	1.9	1.5	1.3	1.1	0.9
$12.50	**44%**	3.6	2.4	1.8	1.4	1.2	1.0	0.9
$15.00	**36%**	3.8	2.5	1.8	1.5	1.2	1.0	0.9

Table 4: *Cost recovery results for facilities of various sizes installing a Pivot Crate P.A.L. (years).*

The optimum pricing points for various size facilities installing a user-pay Pivot Crate P.A.L. system are shown as green cells. In summary:

- 40+ deliveries = $2.50 per use.
- 25+ deliveries = $5.00 per use.
- 20 deliveries = $7.50 per use.
- 15 deliveries = $10.00 per use.
- 10 deliveries = not feasible within 3 years (but can be achieved in *four* years at $10.00 per use – shown in orange).

3.9.2 Option 2: Parallel Crate P.A.L. (Marginally more expensive option)

		Number of Trucks Per Day						
User Charge	**Usage Rate**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
$2.50	**70%**	15.6	9.8	7.1	5.6	4.6	3.9	3.4
$5.00	**63%**	8.0	5.2	3.8	3.0	2.5	2.1	1.9
$7.50	**53%**	6.2	4.0	3.0	2.4	2.0	1.7	1.5
$10.00	**52%**	4.6	3.0	2.3	1.8	1.5	1.3	1.1
$12.50	**44%**	4.4	2.9	2.1	1.7	1.4	1.2	1.0
$15.00	**36%**	4.5	3.0	2.2	1.8	1.5	1.2	1.1

Table 5: *Cost recovery results for facilities of various sizes installing a Parallel Crate P.A.L. (years).*

The optimum pricing points for various size facilities installing a user-pay Parallel Crate P.A.L. system are shown as green cells. In summary:

- 25+ deliveries = $5.00 per use.
- 20 deliveries = $7.50 per use.
- 15 deliveries = $10.00 per use.
- 10 deliveries = not feasible within 3 years (shown in red).

3.9.3 Option 3: Parallel Crate P.A.L. Plus Concrete (Most expensive option)

		Number of Trucks Per Day						
User Charge	**Usage Rate**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
$2.50	**70%**	20.7	13.0	9.5	7.4	6.1	5.21	4.5
$5.00	**63%**	10.6	6.9	5.0	4.0	3.3	2.8	2.5
$7.50	**53%**	8.2	5.4	4.0	3.2	2.6	2.2	2.0
$10.00	**52%**	6.2	4.0	3.0	2.4	2.0	1.7	1.5
$12.50	**44%**	5.8	3.8	2.8	2.2	1.9	1.6	1.4
$15.00	**36%**	6.0	3.9	2.9	2.3	1.9	1.7	1.4

Table 6: *Cost recovery results for facilities of various sizes installing a Parallel Crate P.A.L. plus concrete pad (years).*

The optimum pricing points for various size facilities installing a user-pay Parallel Crate P.A.L. system plus concreting of site are shown as green cells. In summary:

- 35+ deliveries = $5.00 per use.
- 30 deliveries = $7.50 per use.
- 25 deliveries = $10.00 per use.
- 15 deliveries = not feasible within 3 years (but can be achieved in *four* years at $10.00 per use – shown in orange).

3.10 Post-Trial Arrangements

At the end of the trial period, ownership of the Crate P.A.L was transferred to KGF. Given that the Crate P.A.L.:

- Significantly improved driver safety and animal welfare.
- Did not reduce unloading efficiency.
- Was generally accepted by a majority of drivers using the site.
- Had been fully funded by the HVSI program.

KGF management discontinued fees and thereafter made use of the Crate P.A.L compulsory.

4.0 CONCLUSION

Loading and unloading livestock is a high-risk activity. Under workplace health and safety laws livestock facilities may be liable for injuries to handlers including slips, trips, falls, cuts, bruising and abrasions. Safety risks can however be greatly reduced by the installation of moveable gantries providing safe access to livestock crates and loading ramps.

The ALRTA user-pay trial conducted at KGF demonstrated that a 'user-pay' system has potential to facilitate more rapid uptake of safer unloading infrastructure at major livestock depots across Australia.

Specifically, the trial found that:

- It is possible to operate a Crate P.A.L. on a user-pay basis.
- There is a typical supply/demand relationship between user prices and usage rates (i.e. usage rates increase as the price per use is decreased).
- At the KGF site, the optimum price was $10.00 per use with a cost recovery period of 2.6 years.
- At other sites, installation, maintenance and charging costs could typically be fully recovered in less than three years.
- User-pay is likely to be feasible at all sites with more than 15 truck deliveries per day.
- Installation of a Crate P.A.L. improves unloading safety without reducing efficiency.

ALRTA recommends that livestock facilities consider the user-pay option as a means of fast-tracking the installation of loading or unloading gantries.

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