

final report

Project code: B.PRS.0086
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Date published: 30.05.2009
ISBN: 9781741914849

PUBLISHED BY
Meat & Livestock Australia Limited
Locked Bag 991
NORTH SYDNEY NSW 2059

2007/W02 - Lamboo Spear Trap Design

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

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PRODUCER INITIATED RESEARCH DEVELOPMENT

PIRD Final Report

2007/W02

❖ The project Objective.

The projects objective was to improve the profitability of Indigenous pastoral businesses in the Kimberley by reducing overhead costs, particularly mustering costs and increasing income with the introduction of the Lamboo self mustering Spear trap to muster cattle for handling and sale and to move cattle from paddock to paddock in a rotational grazing regime.

❖ The Methodology.

Following the introduction of the spear design and paddock realignment to land type on Lamboo, data was collected with a comparative analysis made to previous management practices.

Data collected was to include:

- Records of labour input as number of hours of labour needed per month and per year will be recorded and compared to the amount of labour input required in previous years.
- The standard contract mustering costs for Lamboo were compared against the use of local labour and the self mustering spears over the years 2006-2008.
- Contract mustering charges in the Kimberley can be up to \$50.00/head and for most Indigenous properties average \$40-45/head.
- An assessment/comparison of the profit margin for 2006-2008 only considers mustering costs, infrastructure development costs are not considered in the comparison.
- Herd dynamics were recorded in relation to:
 - Joining times.
 - Calving rates.
 - Percentage increase in herd breed quality moving away from Shorthorn to *Bos indicus*.

- Weight gain of weaners (To be recorded following the 2009 muster).
- Average weight of sale animals
- Average price per kilo of sale animals recorded.
- Herd size to grow from 800 head to 1500 head with number of animals sold increasing from 234 in 2006 to 450/year.
- A Range Condition Assessment was conducted by Department of Agriculture WA.

❖ **Analysis of the data, what was achieved?**

For much of the data collected three years is too short to be positive about the trend demonstrated. For example herd numbers on the Lamboo were found to be much higher than previously estimated, the spears “cleaned” paddocks of cattle far more effectively than previous years musters and this put pressure on grazing areas that were “behind” wire as these cattle were paddocked until sold off the property. One particular paddock being spelled had to be used for these cattle and the condition of the paddock deteriorated as a result. The condition of this paddock may have skewed the Range Condition Assessment.

Having said this mustering cost advantages of the self mustering system are clear and are indicative of significant improvements.



Laurie Yeeda and Tony Burke the Minister for Agriculture Fisheries & Forestry examine the first spear built on Lamboo.

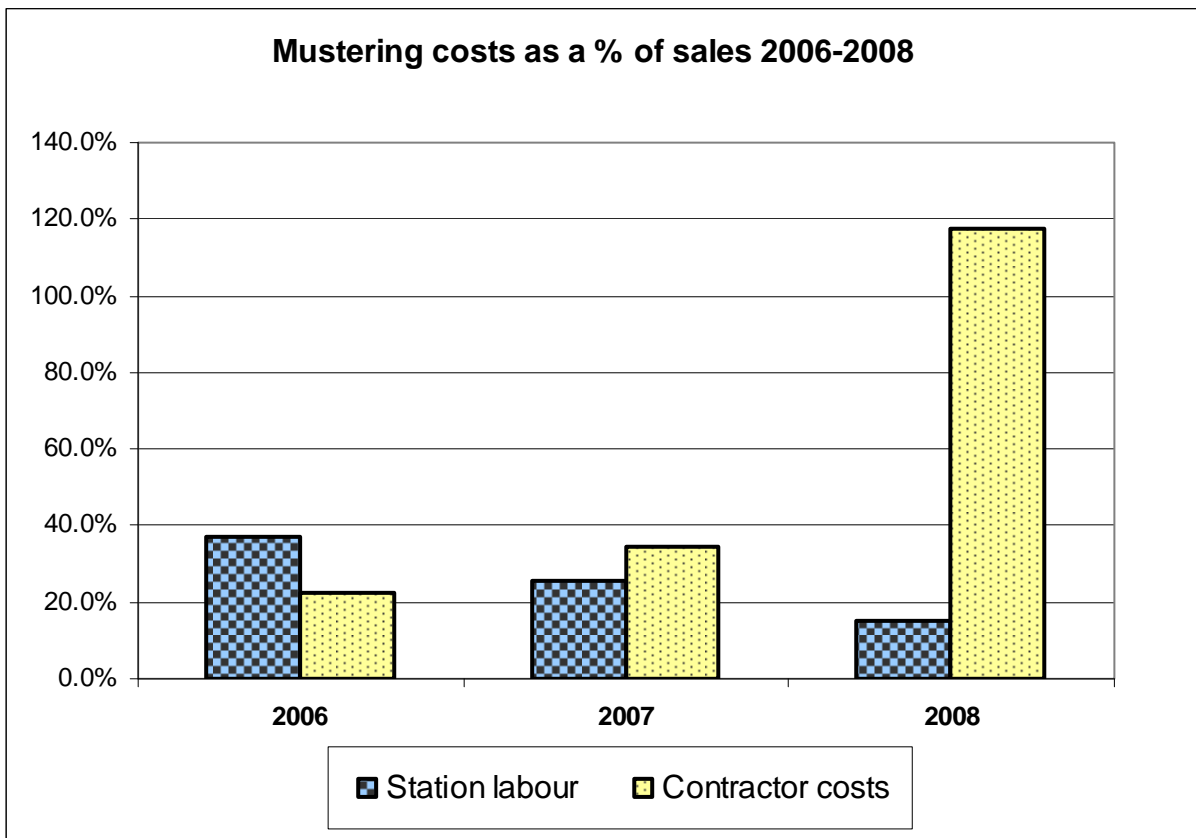
Addressing the objectives outlined on the PIRD application the data demonstrates the following trends:

Mustering Costs.

. Averaging 70% of sales contract mustering (harvesting) is the single most damaging factor to Indigenous owned pastoral businesses in the Kimberley and is unsustainable; for this graph a figure of \$40/head was applied for the comparative model. In the Kimberley the real costs of contractors is much higher as the contractors do little more than harvest an unmanaged herd.

Contractor costs are predicted on the number of cattle mustered and therefore increase with the increase in the herd size, though no contractors have been used on Lamboo since 2005; the contractor costs are comparative only, based on broader Kimberley contractor prices for Indigenous properties.

The graph below compares the cost of mustering as a percentage of the return from the sale of cattle.



Mustering costs have been reduced significantly and contractors are no longer required to muster Lamboo.

- In 2006 to muster the 100,000 ha of northern Lamboo cost ~\$43,000, 650 head were mustered of which 400 belonged to Lamboo.
- In 2008 mustering costs for the same area were ~\$9,500, 1,800 head were mustered, less than fifty belonged to neighbours.
- The 2009 muster on the same area is expected to cost ~\$2.00-2.50/head to muster 1,500 cattle, a total cost of ~\$3,800.
- The Lamboo mustering workforce is down from 15 to five, the time taken to muster from five weeks to three weeks.

The cost of building 20 sets of spears at ~\$1,200 each over three years, \$24,000, was offset by savings in the mustering costs in the years 2007 and 2008. Given the cleaner musters, benefits already evident from improved herd management, and the expected life time of the spears this is a sound return on investment.

Labour Costs.

During the construction of the infrastructure Lamboo management had a pool of 12 workers to draw from for development work and station maintenance. With the infrastructure developments complete only two people are needed to maintain the property.

Labour costs have been calculated on Industry Award WA at \$470.00/week for a station hand. Using this figure, labour costs have decreased by 80% with the completion of the development work.

Because no general station work/maintenance was carried out prior to the development of Lamboo by Robin Yeeda, the only work was during mustering time; a true record of labour cost reductions is not reflected within this time frame and more work will be done to assess this. So the labour cost savings in the short term must be assessed against mustering costs. The labour component at mustering time has been reduced from fifteen musters to five with the time required to muster from five weeks to three.

Labour costs for mustering	2006	2008
	~\$35,000	~\$7,100

Herd dynamics.

The first controlled joining took place late 2006 the photo below is of a mixed herd of weaners that were the first calves dropped following this joining. A point to note is that Lamboo did not at this time have enough *Bos indicus* bulls to cover all the females so the better Shorthorn bulls were included to get the numbers up. In 2007 another mob of *Bos indicus* bulls from the Northern Territory were delivered to Lamboo and by the end of 2007 all Shorthorn bulls were sold off.

“Cleaner” musters quickly became a feature of the self mustering system. Three instances that demonstrate this are:

- the muster of Laura paddock following the construction of the spears. Records from previous musters over a ten year period showed that 450 head had been mustered out of Laura paddock. After the spears were built 840 head were trapped. In the 2007 muster with the spears 92 “scrub” bulls were trapped and sold off Lamboo.
- In the 2007 muster with the spears 92 “scrub” bulls were trapped and sold off Lamboo.
- In 2007 just over 100 feral horses were trapped and removed from Lamboo; a few of the better younger horses were broken-in for stock work. Previously management had several times attempted to muster these horses with little success.



A mixed herd of weaners yarded with the spears in 2008.

With controlled joining affording the introduction of bulls to achieve uniform calving times and cows calving under optimal seasonal conditions; complete herd health treatments, and the ability to effectively wean; calving rates have improved. Calving percentages now reflect the broader Kimberley pastoral industry and are at 80%, up from 50%; with mortalities down to about 5%, from 15-20% previously.

Importantly the *Bos indicus* content in calves has moved from ~20% to ~80%, while overall *Bos indicus* herd content is at ~40% up from 10% in 2005/06.

Additional benefits in relation to herd management/dynamics observed at Lamboo:

- Improved handling and bloodlines is producing cattle with a quieter temperament;
- No animals were lost during the 2008 muster;
- Lamboo management can quickly and easily move cattle from paddock to paddock simply by “setting” the spears before the mobs come in to drink.
- No death or injuries to animals were recorded over the three years due to animals “jamming” in the outset spear.
- Animals tend to move quickly off the water point after drinking, no mobs “camped” on the water longer than necessary to get a drink. Prior to the spears going in it was common for mobs to camp all day on the water points.
- The previously unmanaged mobs at Lamboo quickly became accustomed to the spears with no stragglers at mustering times when the spear exits were closed. In the 2008 musters all cattle were mustered within 12 hours of the spears gates being closed.

Weight gain of weaners

Weight gain of weaners post weaning has not been recorded. This will occur following the 2009 muster.

Low cost of mustering, effective herd control, and improving calving rates has prompted the Lamboo management to investigate the potential of sending Shorthorn weaner steers south to finishing blocks in close proximity to traditional Shorthorn markets at Geraldton and Midland. The weaners can be trucked south for what it once cost to muster them.

Weighing of the weaners at all stages of the transport and finishing will be critical to identifying strategies to reduce wastage while animals are in transport and to give an accurate indication of weight gain over time and returns to the property, Cost Of Gain.

Average weight of sale animals

The average weight of sale animals is declining, this is to be expected as the older unmanaged animals are sold off and Lamboo management prepares lines of younger smaller steers for the livetrade market.

In 2006 the majority of animals sold were older heavier animals, bulls, bullocks and dry cows in the 400-500kg weight range; in 2008 all animals sold were young steers in the 300-350kg weight range.

In this case the loss in average weight is an indication of improved herd management and the property manager targeting a specific market.

Average price per kilo of sale animals.

Sale prices for all lines and breed of Lamboo cattle have remained stable in a declining market particularly in relation to Shorthorn cattle.

Lamboo must continue to rely on selling Shorthorn cattle into the Northern Beef market in the short term, the next five to ten years. Given that Kimberley Shorthorn prices have reduced considerably over the previous two years this will become increasingly difficult so it is a positive outcome to achieve price stability in today's market. The self mustering system will allow the Lamboo management to present consistent lines of Shorthorn cattle into the market during January-February when prices are traditionally higher due to the difficulty of filling boats during the wet season.

Prices have remained at \$1.10-20/kg for Shorthorn steers
 \$1.65-70 for mixed steers
 \$1.80-85 for Brahman steers

Shorthorn bulls have dropped \$1.20 to \$0.80-90.

We are not confident at this early stage and in the current market to provide reliable information on the effect of quiet well handled cattle on prices offered; although buyers commented on the quiet temperament of cattle yarded for sale.

Number sold

Numbers of cattle sold from 2006-2008 has decreased as the larger than expected numbers of previously un-managed animals mustered with the spears have been sold off.

Sales

<u>2006</u>	<u>2007</u>	<u>2008</u>
234	317	140

Sales for 2007 include 92 scrub bulls trapped and sold late in the year. Because of poor prices offered in 2008, management decided to offer for sale only those Shorthorn numbers that met the statutory costs of the lease and to keep the Brahman steers back to sell in 2009.

Herd size

In 2005/06 herd size was estimated at 400 head, this estimate was based on the 2005 muster and the previous eight years musters.

With the construction of the spears every paddock proved to have more cattle mustered out of them than expected. At 25,000 ha Laura paddock is the biggest and hilliest of all Lamboo paddocks. The Laura paddock muster was the most pronounced with 450 cattle expected to be mustered; in fact the spears mustered 840 cattle out of Laura paddock with only 25 "strangers".

In 2007 herd size was re-assessed at 1,200 head, 1,800 head were mustered in 2008. The current herd size is 1,400 breeders.

Range Condition

A Range Condition Assessment was conducted by Department of Agriculture WA during 2008.

At this juncture the Range Condition Assessment cannot be relied upon to provide an accurate picture of the effect of the improved herd management the spears afford. There are two reasons for this:

1. Improved management over the lease has only been effected for a period of three years, the Range Condition Assessment has occurred too soon to provide any substantive data; and
2. Herd numbers on the Lamboo were found to be much higher than previously estimated, the spears "cleaned" paddocks of cattle far more effectively than

previous years musters and this put pressure on grazing areas that were “behind” wire as these cattle were paddocked until sold off the property. One particular paddock being spelled had to be used for these cattle and the condition of the paddock deteriorated as a result.

❖ **What did the Group learn by doing the trials?**

The group’s learning curve was enormous, some of the group were overwhelmed with the information presented at the various field days and training workshops. The group is endeavouring to come from a very low level of skill and property development to take their place in the Kimberley pastoral industry; it will be some time before much of what they learnt will be put into practice.

Some of the points that stand out in their minds are:

- The Lamboo management have achieved most of what they set out to do. Of particular importance is the elimination for the need to bring in choppers and outside labour/contractors significantly reducing mustering costs local jobs for local people, towards economic self determination.
- The continuing benefits to herd management will ensure that Lamboo will be at the forefront of the Kimberley pastoral industry.
- The example of Lamboo proves that Indigenous land managers can affect sound management principles on their land and that in turn builds business strength.
- Interestingly a consistent comment was in relation to this management approach being a powerful tool in breaking the welfare “industry” in the Kimberley.
- Many of the group saw this as an opportunity of empowerment, breaking the reliance on “outsiders” to muster their cattle and to get away from the cattle harvesting mentality of the last 30 years.
- Given the size and differing abilities and landscapes of the group, all members claim that the project has in some way benefited them in their management of their lands. Even those who do not want to adopt a similar system claim to have learnt from the project. For example some members who have no intention at this point to build spears on their properties have benefited from the training days and workshops improving their knowledge base and identifying training/upskilling needs. They did not really know how much they did not know.

- Visits to the project demonstration site by State and Federal Ministers has considerably lifted the profile and efforts of Indigenous pastoralists in the Kimberley and across Northern Australia with very real flow on effects. At a meeting Alice Springs the Federal Minister spoke glowingly about his time at Lamboo the previous year prior to announcing a grant aimed at pastoral training for young Indigenous people in the Alice Springs area. The group is convinced that the Ministers time at Lamboo influenced his decision to award this grant.
- By far the greatest benefit has come from the consolidation of an Indigenous “extension” network of cattle producers for the exchange of information, support and encouragement.

❖ **The impact of the project, members comments**

LAMBOO

Second paddock at Midnight bore (2,000 Ha) to hold sale cattle on rotation for early sales into live trade.

Control of the herd on Lamboo has opened up the possibility of sending Shorthorn weaner steers 150-200kg south to Geraldton for finishing prior to sale at 300-350 kg. The strategy is being considered as a way to realise better prices for Shorthorn steers while the *Bos indicus* content of the Lamboo builds up. Prices offered for Shorthorns have decreased considerably in the Kimberley over the last two to three years. Six decks will be sent as a trial to examine weight off Lamboo, weight in at the Geraldton end to determine wastage following the 2009 muster. Weight gain will be measured over time to determine cost of gain compared to northern finishing times/weights/prices.

MOWANJUM:

Mowanjum management is in the process of constructing self mustering Lamboo Spears at all water points.

MT BARNETT:

Paddock realignment initiated early 2009, the first self mustering spears are to be constructed during September 2009.

With paddock realignment affording some control over the herd Mt Barnett has joined the WA Department of Agriculture Carbon Sequestration Trial. The spears going in at Mt Barnett will provide a further measure of herd control enhancing any potential income options in relation carbon sequestration.

Self Mustering yards to be built at Marion boundary and Trucking yards bores.

LAKE GREGORY-BILILLUNA

Holding paddocks and steer paddock repaired, business/development plan completed and accepted by Pastoral Lands Board, agreement with CDEP and training Organisation conduct training in Lamboo Spear design and construction June 2009. Robin Yeeda from Lamboo will oversee the initial spears going in at Lake Gregory.

MILLIJIDDEE

Millijiddee managers planning to put in first self mustering spears late 2009.

PILBARA:

Indigenous producers from the Pilbara will attend a workshop on the Lamboo Spear design and paddock realignment at Lamboo and Mt Barnett early July 2009.

❖ **How have/will members improve their bottom line?**

The economics of the outcomes are that a standard Kimberley practice has been for contract musters to charge a fee of 70% of all sales for mustering a property; equating to \$40-50/head to muster. The spear design affords Indigenous pastoral managers to break away from this destructive reliance on contractors. The 2008 Lamboo muster cost ~\$9,200 just 13% of the expected contractor costs ~\$72,000.

Additionally mustering costs have steadily reduced over the three years from being 37% of income from sales in 2006 to 15% of income in 2008; in any measurement these are significant savings.

In an environment where there is a shortage of skilled pastoral workers the spears effectively take the place of a mustering crew at an insignificant initial cost.

The most important economic advantage is the move away from “harvesting” un-managed Shorthorn cattle to the development of a well manage herd that meets market requirements.

No other group member is as advanced as Lamboo but the trends on all other properties putting in the self mustering system reflect the early days at Lamboo.

❖ **Environmental benefits of the outcomes of your project.**

The primary environmental benefits are:

- Removal of uncontrolled grazers, both feral horses and unmanaged cattle.
- The opportunity to exclude stock from heavily grazed areas and areas previously degraded.
- Removal of fencelines from creeks and small rivers.
- Ability to set stocking rates for all paddocks and have control of the numbers.

❖ **Field days & Workshops.**

Members of the group attended the:

- Six field days on the Spear design were held on Lamboo;

Date	Event	Participants
○ November 2006	Kimberley Field Day	15
○ March 2007	Kimberley Field Day	5
○ June 2007	Southern Regions Field Day	7
○ July 2007	Kimberley Field Day	3
○ July 2008	Federal Minister Field Trip	9
○ November 2008	State Minister Field Trip	8
▪ Edge Nutrition Workshop		3
▪ Soils Workshop Mt Barnett		5
▪ Low Stress Stock Handling Course (Jim Lindsay)		6
▪ Site visit to Lamboo by the Honourable Tony Burke Minister for Agriculture Fisheries & Forestry and the Honourable Terry Redman Minister for Agriculture WA;		
▪ Midland Cattle Sales		14
▪ Hervey Beef		14
▪ South West Bull breeder workshop		14
▪ KLR Marketing course in Carnarvon		3
▪ Beef Forum Carnarvon		3
▪ Cheela Plains intensive grazing operation		3
▪ Grazing Land Management (DAFWA) workshop, Halls Creek		1
▪ Grazing Land Management (DAFWA) workshop		1



Colin Fuller (Kimberley Indigenous Management Support Service) and Dr David Tongway examine the Mt Barnett clay soils while Ivan Bridge (Halls Creek) and Mark Alchin (Carbon Credit Project DAFWA) look on.



The Honourable Terry Redman Minister for Agriculture WA & Robin Yeeda the Lamboo manager at the Lamboo field day November 2008.



**Members of the group at the Low Stress Stock Handling Course, Roebuck Plains Station
June 2008.**

❖ **Please identify members practice changes as a result of their trials outcomes**

Lamboo will use a helicopter for a half day in a clean up muster with the neighbour during July 2009, this will be the last time a helicopter is required to muster Lamboo.

Following the positive outcomes of the spear design for Lamboo Indigenous producers from the Pilbara have decided to attend a workshop on the Lamboo Spear design and paddock realignment at Lamboo early July 2009.

With paddock realignment affording some control over the herd Mt Barnett has joined the WA Department of Agriculture Carbon Sequestration Trial. The spears going in at Mt Barnett will provide a further measure of herd control enhancing any potential income options in relation to carbon sequestration.

Millijiddee is convinced of the merit in the design and plan to build their first spears toward the end of 2009.

Lake Gregory and Billiluna Stations have applied for funding to build the spears on all of the station water points as the Lamboo trials proved the efficiency of the spears in humanely trapping feral horses, there are approximately 4,000 feral horses on the two properties; attempts to cull the horses have met with resistance from Animal Welfare groups.

❖ **Was the Group satisfied with the results of the project?**

Not all of the group is satisfied with the results as demonstrated at Lamboo primarily as some of the properties that group represent are well watered with natural rivers and springs. This issue will be addressed as the properties are developed and paddock infrastructure will lend itself to using the spear design as this occurs. Additionally the concept of trapping cattle using lick blocks and other supplements is new to these producers and I expect this information to take some time to sink in.

❖ **How could you have done the project better?**

Timeframes “blew out” as with the various work schedules it proved impossible to get the entire group together at any one time.

A strategy was adopted where those that are leaders in the group attended workshops, training events and industry forums with field days held at Lamboo for individual members to determine times and information covered. They then held training days on individual properties. More commonly management groups from other properties travelled to Lamboo to learn from Robin Yeeda.

If we were to do another project we would establish a demonstration property from the outset, in all likelihood Lamboo.

❖ **Is the group interested in doing another project?**

At this point in time the group is not interested in committing to another project, although individuals within the group would be.

❖ **Would you recommend other Groups run their own trials?**

We would recommend other groups to carefully consider running their own trials and would be prepared to share our experiences with them.

❖ **Project expenses**

The PIRD is on budget.

Activity	Cost	Provider
Spears design field days at Lamboo (6);	\$1,800	MLA
Edge Nutrition Workshop;	\$1,600	Farmbis
Low Stress Stock Handling Course (Jim Lindsay);	\$3,300	MLA
Midland Cattle Sales;	\$2,000	KIMSS
Hervey Beef;	\$2,000	KIMSS
South West Bull breeder workshop;	\$2,000	KIMSS
KLR Marketing course in Carnarvon;	\$2,600	KIMSS
Beef Forum Carnarvon;	\$1,500	MLA
Grazing Land Management (DAFWA) workshop, Halls Creek and Broome; and Cheela Plains intensive grazing operation	\$ 800 \$1,500	Farmbis MLA
TOTAL	\$19,100	

The Kimberley Indigenous Management Support Service a project of Department of Agriculture & Food WA and the Indigenous Land Corporation has “topped up” the PIRD funding to continue activities beyond the close the 08-09 financial year and to meet the extra \$400 needed to cover the cost of the Carnarvon Beef Forum.

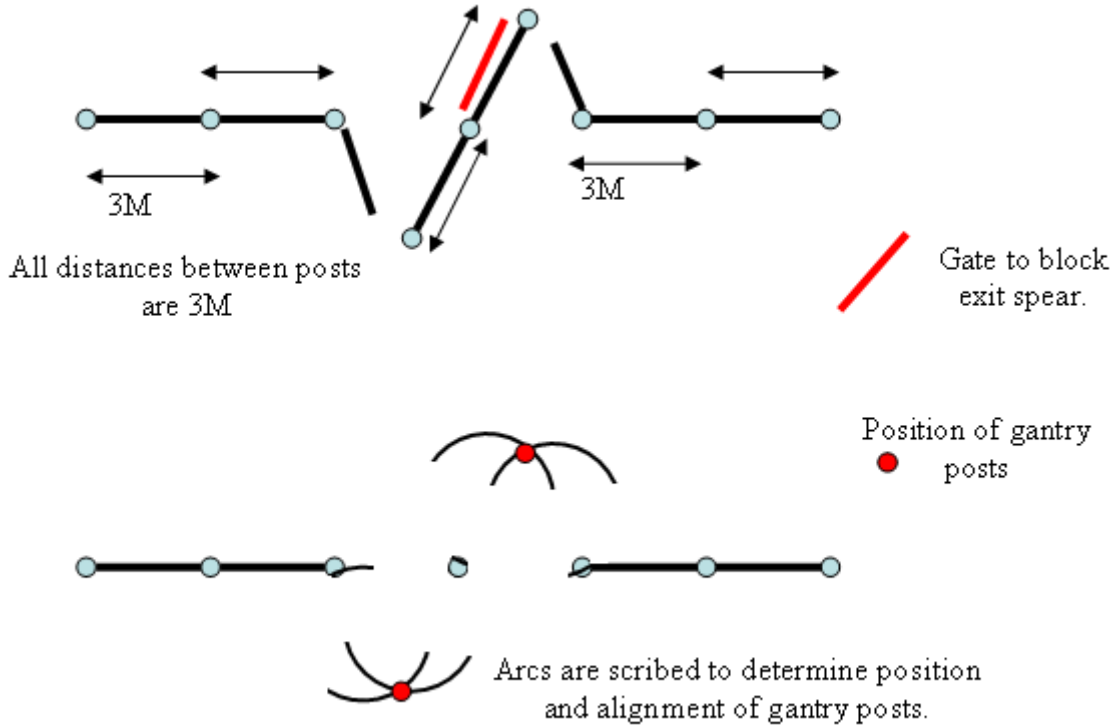
❖ **Comment on the organisation and management of PIRDS, this will assist MLA in better management of future projects.**

Interim reporting formats are cumbersome and difficult to work with particularly if you decide to include photographs; lose the boxed layout and adopt interim format as here in the final report format.

Appendix

Lamboo Spear Design & layout.

Open spear is pointed at trough,
cattle walk straight through to water and back along pad to leave water point.



The spears in the photo have the gate into the water fully open and the gate out “set”.

