The study analyses four high profile Australian Brands of Standard Lead Jig heads and compares them to Swimerz Texas/Weedless rigging products. The findings indicate that using the Texas/Weedless rig is approx. 40% cheaper on average to purchase, and that cost savings could be expected to be significantly higher overall if this method of fishing was to be utilised in preference to using Standard Jig Heads due to their superior performance in difficult fishing situations.

Analysis of the cost implications of using Texas or Weedless Rigging methods versus Standard rigid Jig Heads

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Analysis of the cost implications of using Texas or Weedless Rigging methods versus standard rigid jig heads

Objective

To obtain a comparison of the cost of a single soft plastics rig between two different methods for presentation of a lure. These methods are 1) 'Texas' or Weedless rigging and 2) Standard rigid lead Jig Heads.

Background

The Australian publication Fishing World Magazine in 2012 described 'Texas rigs' as 'probably the most commonly used rig to fish soft baits in the US. A Texas-rigged plastic worm has accounted for more wins on the B.A.S.S tour than any other combination to date'. Kim Bain from Fishing Monthly Magazine, also an Australian publisher, in 2008, had described Texas rigging as an alternative to the standard jig head approach. Bain states that 'the advantage that a Texas rigging system offers is that you get better lure action and you get to mix and match your weights and hooks giving you more options to select the perfect weight and perfect hook to suit each situation while carrying less terminal tackle and weight'.

The 'standard jig head' has been commonly used throughout Australia for many years and is represented in the marketplace by a variety of different brands, shapes and sizes. The recognised Australian Journalist Nigel Webster (Fishing Monthly 2007) describes the 'standard jig head' as 'a hook with a lump of lead melted just below the eye of the hook. It's pretty much a hook with a sinker attached to it'.

In both cases different materials such as tungsten and lead for example, may be used, subject to fisher preferences. Different shapes and diameter of hook may also be used.

There are various forums and articles written regarding the comparative advantages of one type over another that can be reviewed, and some references are available at the end of the study document that may be of assistance in choosing a rigging method that is appropriate for various species and conditions. Arguments about which one is best etc, are outside the scope of this study.

Scope and Limitations

Standard Lead Jig Head prices from a select group of established and well known Australian based retailers of four Brands of this type of Item were compared to the acquisition cost of Swimerz components for Texas/Weedless rigging. Types of Jig Head included in the study initially were –

- 1. Wilson Fixed Jig Heads
- 2. TT Lures Head Hunter Extreme Jigheads
- 3. Atomic Seekerz Jig Heads
- 4. Squidgy Weapon Jig Heads

The study was conducted online only over June 27 to June 30, 2016 and may not reflect prices etc found in bricks and mortar stores or online on other dates or with other retailers. All URL's to the items included in the study have been provided in the relevant Attachment to enable independent viewing and analysis of the results.

In order to confirm an average price across models and ranges a minimum of three individual retailers were sought for each Type. In the available timeframe the Wilson Fixed Jig Head could only be identified on one site (Motackle), so a valid average price could not be confirmed.

Products from overseas sources were not included in the study as pricing overheads such as GST, importation costs inclusive of freight and tariffs, and higher Australian business overheads and costs of sale, eg commercial rents and salaries, may produce distortion in the analysis.

Normalisation was undertaken following an initial analysis. Where brands may have had types with larger hook sizes or weights etc that could not be compared across all categories these were excluded from further analysis. The use of alternative materials, such as tungsten, was also excluded as lead, while its use is diminishing in international markets due to environmental concerns, is still the most widely available material used in Australia.

Research tools

Quantitative analysis techniques were used in the analysis eg Contour Plotting, Scatterplots, Time series plotting, and Individual-Moving Range Charting techniques drawn from the Six Sigma Framework. Specific software tools were Microsoft Excel and the Minitab Statistical Analysis software suite.

The Analysis

The data for the analysis is contained in the spreadsheet in the Attachments. For reference purposes the analyses that follow are grouped according to the following Chart.

Brand	Brand Number	Item Numbers
Swimerz Wide Gape Hook based rig	1	1 to 8
Swimerz Long Shank Hook based rig	2	9 to 14
Swimerz Offset Hook based rig	3	15 to 18
Squidgy Weapon Jig Heads	4	19 to 28
Atomic Seekerz Jigheads Heavy Wire	5	29 to 50
TT Lures Head Hunter Extreme Jigheads	6	51 to 58
Wilson Fixed Jig Heads	7	59 to 68

Table 1.1 Brand Group Identification

All references to Brands and Item characteristics and prices were current as at June 27, 2016.

Scatterplot of Item \$ (Cost) Vs Item Wgt (Weight)

A scatterplot is a graph that you can use to explore the potential relationship between a pair of continuous variables. Minitab plots symbols at the data values of the variables at their (x, y) coordinates. When you create a scatterplot, you usually display the response variable on the y-axis and the predictor variable on the x-axis for each observation.

This chart looks at each Brand included in the study and provides a grouping of their products by weight and price position. Items belonging to a specific group eg Squidgy Weapon Jig Heads (indicated in Red) are linked with colour coded lines between item symbols.



This analysis places the three Swimerz Weedless rigging options in the lower cost segment (indicated). Note the Swimerz 'Long Shank' and 'Offset Shank' options follow the same path.

Time Series Plot

A time series plot is a graph that you can use to evaluate patterns and behaviour in data over time. A time series plot displays observations on the y-axis against equally spaced time intervals on the x-axis. Time series plots are often used to examine daily, weekly, seasonal or annual variations, or before-and-after effects of a process change. Time series plots are especially useful for comparing data patterns of different groups

The Time Series Plot separates Brand Groups and Item prices according to the Item Numbers allocated to individual products for the analysis (refer Table 1.1). The Plot indicates the price ranges for each Brands offer.



This analysis places the three Swimerz Weedless rigging options in the lower cost segment (indicated).

Contour Plot

The Contour Plot utilises the Brand Groups indicated in Table 1.1. A contour plot is a graph that you can use to explore the potential relationship between three variables eg Item \$ (price), Item Weight (ie jig head size/weight), and the Brand Group to which the Items belong. Contour plots display the 3-dimensional relationship in two dimensions, with x- and y-factors (predictors) plotted on the x- and y-scales and response values represented by contours.



The result of this analysis indicates that Brand Groups 1 to 3 representing the Texas/Weedless Rigging options, occur in the lowest cost sector of the Plot when compared to Groups 4 to 7, the standard jig head brands.

Individual-Moving Range

An MR chart plots the moving range over time to monitor variation for individual observations (Items). The MR chart is used when it is difficult or impossible to group measurements into subgroups. This occurs when measurements are expensive, production volume is low, or products have a long cycle time. When data are collected as individual observations, you cannot calculate the standard deviation for each subgroup (Brand Ranges). The moving range is an alternative way to calculate process variation by computing the ranges of two or more consecutive observations.



The IM-R Chart utilises the Brand Groups indicated in Table 1.1. It calculates the Means for the Items included in each Brand and provides a view that, in this instance, the price ranges for the three Texas/Weedless Rigging options is below that of all 'Classes' of Standard Jig Heads provided by each of the Brands included in the study.

The Findings

The four comparison brands of Standard Jig Head were largely more expensive than similar Texas/Weedless Rig Options.

In the sub \$1 category there were Qty 4 Squidgy Jig Heads and Qty 4 Swimerz Texas/Weedless Rigs from a total of 68 items included in the study.

The maximum cost of all Items from the three Texas/Weedless categories from Swimerz were under \$1.35 per item, with an average cost per rig of \$1.17.

This was not the case with the Standard Lead Jig Head Item prices with costs to the consumer ranging as high as \$3.35 in the case of the Wilson products. The average price per rig across the four Brands of Standard Jig Head was \$2.03 per rig.

The average price difference therefore has the Texas/Weedless rig being approx. 40% cheaper on average.

While this is a significant cost saving, the purpose of the Texas/Weedless rig is the avoidance of the principal problem identified for the standard jig head in the literature ie snagging and loss of these rigs. As the loss rate for Texas/Weedless rigs is held to be significantly lower than for Standard Jig Heads, cost savings could be expected to be significantly higher overall if this method of fishing was to be utilised in preference to Standard Jig Heads.

References

1

Australian Fishing Online 2010 'Snag proofing jig heads' http://www.australianfishing.com.au/forum/topic/21084-snag-proofing-jig-heads/

Bass Fishing Home Page 2005 'Fishing Tactics' Forum. http://www.anglerworld.com/bassfish/bassboard/fishing_tactics/message.html?message_id=14582

Fishing Monthly Magazine (Webster, N) 2007 'Artificials A to Z: Jigheads' http://www.fishingmonthly.com.au/Articles/Display/2278-Artificials-A-to-Z-Jigheads

Fishing Monthly Magazine (Bain, K) 2008 'Texas Weedless Worm Rigging' http://www.fishingmonthly.com.au/Articles/Display/155-TEXAS-WEEDLESS-WORM-RIGGING

Fishing World Magazine 2012 'Advanced Soft Plastic Rigs' http://www.fishingworld.com.au/news/advanced-soft-plastic-rigs#QEzvGsQZwHGImSTr.99

Quantitative Analysis Definitions

What is a scatterplot?

http://support.minitab.com/en-us/minitab/17/topic-library/basic-statistics-and-graphs/graphs/graphs-of-pairs-of-variables/scatterplots/scatterplot/

What is a contour plot?

http://support.minitab.com/en-us/minitab/17/topic-library/basic-statistics-and-graphs/graphs/graphs-of-three-variables/contour-plots/contour-plot/

What is an MR (moving range) chart?

http://support.minitab.com/en-us/minitab/17/topic-library/quality-tools/controlcharts/understanding-variables-control-charts/what-is-an-mr-moving-range-chart/

What is a time series plot?

http://support.minitab.com/en-us/minitab/17/topic-library/basic-statistics-and-graphs/graphs/graphs-of-time-series/time-series-plots/time-series-plot/

Attachment 1 - Reference Sites

Source	URL - June 27, 2016
Squidgy	http://www.motackle.com.au/squidgy-weapon-jig-heads.html
Weapon	
Jig Heads	
	heads.html
	http://www.anglerswarehouse.com.au/products.asp?categorynospaces=squidgy_jig_h eads_458
	http://ottostackleworld.com.au/store/product/8686/Squidgy-Weapon-Jig-Heads-02-1./
Atomic	http://www.motackle.com.au/atomic-seekerz-jig-heads.html
Seekerz	
Jig Heads	
	http://www.anglerswarehouse.com.au/product_search.asp?searchby=keywordmode& keyword=jig+head&x=0&y=0
	http://www.tacklewarehouse.com.au/index.php/lure-jig-heads/jig-heads/atomic- seekerz-jig-head.html
TT Lures	http://www.motackle.com.au/head-hunter-3103684.html
Head	
Hunter	
Extreme	
Jigheads	
	http://www.tacklewarehouse.com.au/index.php/lure-jig-heads/jig-heads/tackle-
	tactics.html?p=2
	http://www.anglerswarehouse.com.au/product_search.asp?searchby=keywordmode& keyword=Head+Hunter&x=24&y=7
Wilson	http://www.motackle.com.au/wilson-fixed-jig-heads.html
Fixed Jig	
Heads	

Attachment 2 – Item Reference Number Table

Description	Jighead	Average Price	Group	Item Record
	Weight gm	per unit	Number	Number
Swimerz Wide Gape Hook based rig	1.8	\$1.07	1	1
Swimerz Wide Gape Hook based rig	2.5	\$1.21	1	2
Swimerz Wide Gape Hook based rig	5.3	\$1.35	1	3
Swimerz Wide Gape Hook based rig	7.2	\$1.35	1	4
Swimerz Wide Gape Hook based rig	10.6	\$1.64	1	5
Swimerz Wide Gape Hook based rig	14	\$1.64	1	6
Swimerz Long Shank Hook based rig	1.8	\$0.78	2	7
Swimerz Long Shank Hook based rig	2.5	\$0.92	2	8
Swimerz Long Shank Hook based rig	5.3	\$1.06	2	9
Swimerz Long Shank Hook based rig	7.2	\$1.06	2	10
Swimerz Long Shank Hook based rig	10.6	\$1.34	2	11
Swimerz Long Shank Hook based rig	14	\$1.34	2	12
Swimerz Offset Hook based rig	1.8	\$0.78	3	13
Swimerz Offset Hook based rig	2.5	\$0.92	3	14
Swimerz Offset Hook based rig	5.3	\$1.06	3	15
Swimerz Offset Hook based rig	7.2	\$1.06	3	16
Swimerz Offset Hook based rig	10.6	\$1.34	3	17
Swimerz Offset Hook based rig	14	\$1.34	3	18
Squidgy Weapon Jig Heads	3.5	\$0.68	4	19
Squidgy Weapon Jig Heads	5	\$0.98	4	20
Squidgy Weapon Jig Heads	7	\$0.98	4	21
Squidgy Weapon Jig Heads	9.5	\$2.28	4	22
Squidgy Weapon Jig Heads	7	\$0.98	4	23
Squidgy Weapon Jig Heads	14	\$2.28	4	24
Squidgy Weapon Jig Heads	9.5	\$2.28	4	25
Squidgy Weapon Jig Heads	14	\$2.28	4	26
Squidgy Weapon Jig Heads	20	\$3.42	4	27
Squidgy Weapon Jig Heads	30	\$3.42	4	28
Atomic Seekerz Jigheads Heavy Wire	7	\$1.41	5	29
Atomic Seekerz Jigheads Heavy Wire	4.6	\$1.41	5	30
Atomic Seekerz Jigheads Heavy Wire	3.5	\$1.41	5	31
Atomic Seekerz Jigheads Heavy Wire	2.5	\$1.41	5	32
Atomic Seekerz Jigheads Heavy Wire	5	\$1.41	5	33
Atomic Seekerz Jigheads Heavy Wire	1.2	\$1.41	5	34
Atomic Seekerz Jigheads Heavy Wire	4.6	\$1.41	5	35
Atomic Seekerz Jigheads Heavy Wire	3.5	\$1.41	5	36
Atomic Seekerz Jigheads Heavy Wire	7	\$1.41	5	37
Atomic Seekerz Jigheads Heavy Wire	3.5	\$1.41	5	38
Atomic Seekerz Jigheads Heavy Wire	4.6	\$1.69	5	39
Atomic Seekerz Jigheads Heavy Wire	7	\$1.69	5	40

Atomic Seekerz Jigheads Heavy Wire	9.5	\$1.69	5	41
Atomic Seekerz Jigheads Heavy Wire	4.6	\$1.69	5	42
Atomic Seekerz Jigheads Heavy Wire	7	\$1.69	5	43
Atomic Seekerz Jigheads Heavy Wire	9.5	\$1.69	5	44
Atomic Seekerz Jigheads Heavy Wire	14	\$1.69	5	45
Atomic Seekerz Jigheads Heavy Wire	7	\$1.69	5	46
Atomic Seekerz Jigheads Heavy Wire	4.6	\$1.69	5	47
Atomic Seekerz Jigheads Heavy Wire	9.5	\$1.69	5	48
Atomic Seekerz Jigheads Heavy Wire	14	\$1.69	5	49
Atomic Seekerz Jigheads Heavy Wire	21	\$1.69	5	50
TT Lures Head Hunter Extreme Jigheads	7	\$1.34	6	51
TT Lures Head Hunter Extreme Jigheads	7	\$1.34	6	52
TT Lures Head Hunter Extreme Jigheads	7	\$1.88	6	53
TT Lures Head Hunter Extreme Jigheads	10	\$1.88	6	54
TT Lures Head Hunter Extreme Jigheads	14	\$1.88	6	55
TT Lures Head Hunter Extreme Jigheads	10	\$1.88	6	56
TT Lures Head Hunter Extreme Jigheads	14	\$1.88	6	57
TT Lures Head Hunter Extreme Jigheads	21	\$2.35	6	58
Wilson Fixed Jig Heads	10	\$3.32	7	59
Wilson Fixed Jig Heads	14	\$3.32	7	60
Wilson Fixed Jig Heads	7	\$3.32	7	61
Wilson Fixed Jig Heads	14	\$3.32	7	62
Wilson Fixed Jig Heads	7	\$3.32	7	63
Wilson Fixed Jig Heads	17.5	\$3.32	7	64
Wilson Fixed Jig Heads	7	\$3.32	7	65
Wilson Fixed Jig Heads	10	\$3.32	7	66
Wilson Fixed Jig Heads	14	\$3.32	7	67
Wilson Fixed Jig Heads	17.5	\$3.32	7	68

		Group Number a a a a a a		00000		υ ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο			80 80 80 80 80 80 80 80 80
		Item Record Number 1 2 3 6 6	7 8 10 12	11 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15		5 S Z Z Z Z Z Z Z S S S S S S S S S S S	20 元	2 2 2 2 3 5 5 8	8 8 8 8 8 8 8 8 8 8 8
		Average Price per unit \$1.07 \$1.21 \$1.35 \$1.35 \$1.64 \$1.64	\$0.78 \$0.92 \$1.06 \$1.34 \$1.34	\$0.78 \$0.92 \$1.06 \$1.06 \$1.34 \$1.34		Average Price per unit 9.068 9.038 9.038 9.038 9.038 9.038 9.238 5.238 5.238 5.238 5.342 5.342 5.342	Average Price per unit 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.41 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.69 51.60 51.60 51.61 5	Average Price per unit \$1.34 \$1.34 \$1.38 \$1.88 \$1.88 \$1.88 \$1.88 \$1.88 \$1.88 \$1.88 \$2.35	Average Price per unit 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2
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		Jghead Weight gm 1.8g 2.5g 5.3g 7.2g 10.6g 14g	1.85 2.58 5.38 7.28 10.6g 148	1.88 2.58 5.38 7.28 10.6g 148		Retail S 56.05 56.09 56.09 56.09 56.09 56.05	Retail 5 58.05 57.50 57.50 58.47	Retail 5 59 85 59 85 59 85 59 40 59 40	Retail \$ \$9.95 \$9.95
Weedless Rig	http://www.blueesatadekecs.com.al/sinkers-lead/swimerz-bullet-worm-sinker/ http://www.blueesatadekecs.com.al/supper-dead/swimerz-turo-beadd/ http://www.blueesatadekecs.com.al/supper-deadd/swimerz-turo-beadd/ http://www.blueesatadekecs.com.al/nobcd/ http://www.blueesatadekecs.com.al/nobcd/ http://www.blueesatadekecs.com.al/nobcd/ wimerz-tong-shark-worm-hook/	Source URL http://www.bluesestackeco.com.au/hooks/swimerr.wide.gppe.worm-hook/	http://www.blueseastackeco.com.au/hooks/swimera-ong-shank-worm-hook/	http://www.blueseastackeco.com.au/hooks/swimerz-offset-sharb.jg-hook/	Jig heads	Source UR. http://www.include.com.au/gruldgy.weaponjg-heads.html http://www.include.com.au/gruldgy.weaponjg-heads/gruldgy- http://www.anglerswarehouse.com.au/products.sp?categonropacesequidgy_JI http://include.eleeworld.com.au/store/product/8866/Squldgy-Weapon/gr-heads-502 Weedge Price perpack.	Source UR: http://www.andecks.com.al/conic.seekers.iii.haad.html http://www.andecks.com.al/conic.see http://www.andecks.com.al/conic.see Average.Price perspect	Source UR. http://www.motackie.com.av/head-hurter-310368.html http://www.motackie.com.av/head-hurter-310368.html http://www.motackie.ecom.av/head-hurter-310368.html http://www.anglecrearethuse.com.av/product_sent14.sp?#sent197%epvortmoc buerge Price perpack	Source URL http://www.motacdie.com.au/wijson-freed-jig-heads.html Avenage Price per pack
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Attachment 3 - Spreadsheet Containing Research Data