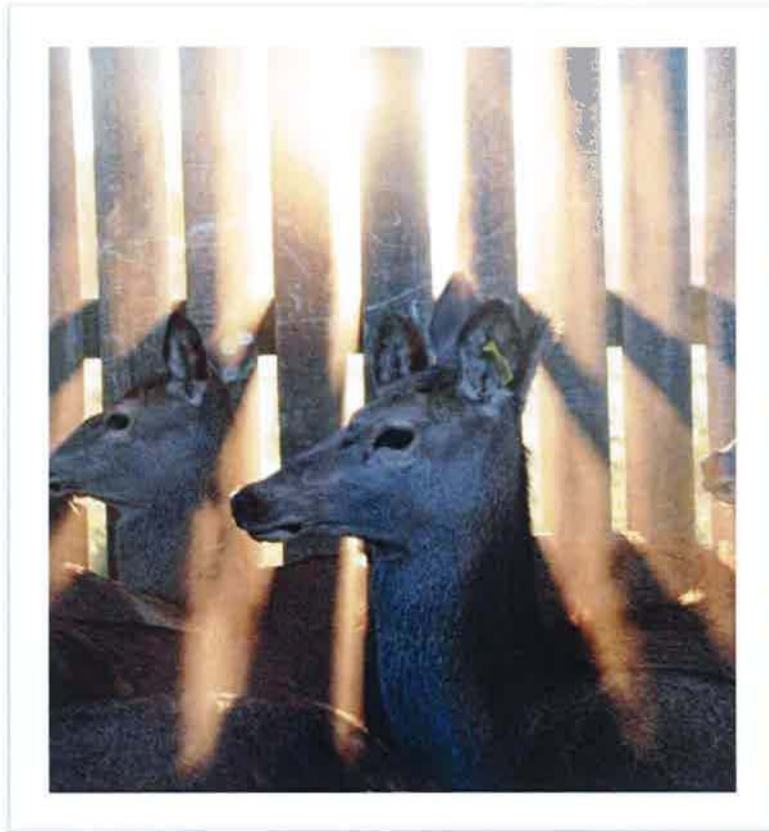


## FIRSTLIGHT VENISON VALUE SHEET

Yield Based Payment System Enabling Carcass Optimization through Identification of High Value Traits



ANGUS IRVINE

KELLOGG RURAL LEADERSHIP PROGRAMME 2012

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## Introduction

The traditional New Zealand meat industry payment system has historically benefited farmers for through-put of livestock with little incentive to improve carcass quality or meat yield. This existing kill payment structure reacts to short term market signals and encourages farmers to “chase” higher seasonal returns, and, as is the case in the venison industry these higher returns are traditionally generated through the spring chill period before a large majority of deer are finished to their optimum potential. This means that individual deer farmers and the deer industry as a whole are missing out on potential production as farmers seek to slaughter light animals prior to the schedule depreciation.

Although current deer industry initiatives will go some way to improve on-farm performance enabling farmers to slaughter deer earlier, the majority of farmers will still be unable to reach these milestones. This is even more evident as other competitive land uses encroach into premium deer finishing country forcing later more marginal land to be used for finishing

Recent industry initiatives such as the DIFF project and Productivity Strategy seek to improve on farm performance with measurements in economic indices such as carcass returns per hectare, cost of production per kilogram of dry matter consumed and per hectare economic performance yet there has been little done to reward farmers for higher yielding animals at the processor or market level.

With existing and emerging lucrative markets in the UK and elsewhere offering longer term contracts for quality venison this allows for certainty of price to the farmer and requires consistent numbers to market which is achieved through optimal all year round supply systems finishing deer to heavier carcass weights (Targeting U2 hinds 60kg+ and U2 stags 65 kg+)

Firstlight Venison NZ Ltd (FLV) is encouraging farmer suppliers to grow their deer heavier to their “optimum genetic potential” and enable the company to move away from the reliance on selling venison to the traditional and inconsistent northern European chilled game markets.

To further incentivise and reward farmers for producing young high yielding quality deer all year round the Value Sheet approach is being introduced to pay farmers on cents per kilogram of meat yield per carcass processed.

For this innovative new payment system to become reality a large amount of information needs to be collected and analysed.

To do this FLV has undertaken, in conjunction with Venison Packers Fielding, the data collection project over the previous 18 months culminating with the introduction of the yield based payment system in the Value Sheet.

## Section 1

### Value Sheet Background

#### Yield Based Payments

Introducing a yield based payment system is designed to reward better finished animals and incentivize farmers to grow deer to achieve their genetic potential through increased weights and higher yielding carcasses. This information can also be of use to participating farmer breeding programs.

The system will also be introduced in combination with the existing Firstlight payment structure:

- Base price set annually
- Seasonally weighted base price
- Rolling three year supply agreements
- Identical pricing for hinds and stags

This allows farmers to transparently know the value of finished deer throughout the year and budget both feed and finance accordingly returns alleviating the need to slaughter animals at lighter than optimum weights in order to meet the traditional northern European chilled venison market.

The financial benefits of this transparent supply chain which links farmers directly with customers and retailers is demonstrated in the graph below which shows that the average Firstlight base price plus pool payment has averaged \$0.95/kg above industry averages for the last 5 years.



## Data Collection System

Data collection allows for the identification and measurement of individual carcasses, cuts and co-products to which market values are applied, to enable the payment system through the Value Sheet.

By identifying and weighing each cut, a market related price can be assigned to that individual piece which, along with co-product values, when added to the final Value Sheet calculates to the gross value of the individual carcass. This allows for total transparency throughout the supply chain and allows the farmer to analyse individual and mob data.

Along with carcass data collected at processing, the data collection system allows for the farmer to collect and send individual and mob information to the Firstlight office to be included in the Value Sheet.

This allows for the farmer, whether a breeder or finisher or breeder/finisher, to identify a number of influencing factors alongside information collected at slaughter and boning and evaluate and identify trends in individual animals, genetic lines as well as farmer and the FLV group productivity as a whole

1. Genetic history – sire stag heritage
2. Breeder – origin of the deer purchased
3. Life time growth data

Farmer AB Farming Ltd  
 Kill date 1/09/2012  
 Boning Date 21/08/2012

Key  
 Data averaged

EID	VID	Age	Sex	Grade	GR	Dg	Animal			Shoulder			Middles			Other	By Products						Total			
							LWT	CCW	Yield%	Kgs	Yield %	\$	Kgs	Yield %	\$		Kgs	Yield %	\$	\$	Tail	Pizzle	Skinn	Other	\$/hd	\$/kg
942 000005142137	685Y	U2	Stag	AP2	4	97.7	59.2	60.6	14.7	24.8	105.7	4.8	8.1	121.9	16.5	27.8	209.0	12.8	0.14	9.6	0.37	7.9	27.0	8.8	502.6	8.49
942 000005677194	533Y	U2	Stag	AP2	6	103.6	56.2	54.2	14.2	25.2	101.9	4.9	8.7	124.7	15.3	27.2	194.4	12.0	0.17	9.6	0.34	7.2	27.0	8.8	485.5	8.64
942 000005104595	1628Y	U2	Stag	AP2	8	93.1	57.2	61.4	14.5	25.3	104.3	4.7	8.1	118.3	16.0	27.9	203.0	12.1	0.10	3.7	0.36	7.7	27.0	8.8	484.8	8.48
942 000005676662	760Y	U2	Stag	AP2	7	98.0	61.4	62.7	15.3	24.9	110.1	5.8	9.4	146.3	17.8	29.0	226.0	12.4	0.13	9.6	0.42	8.9	27.0	8.8	549.0	8.94
942 000005140613	198Y	U2	Stag	AP2	4	99.3	57.1	57.5	14.4	25.2	103.6	4.5	8.0	115.6	16.4	28.8	208.6	12.0	0.19	26.0	0.34	7.2	27.0	8.8	508.7	8.91
942 000005670371	197Y	U2	Stag	AP2	5	96.5	56.9	59.0	14.6	25.7	105.0	4.7	8.2	118.7	16.2	28.5	205.7	11.8	0.12	9.6	0.38	8.1	27.0	8.8	494.5	8.69
942 000005140756	1447Y	U2	Stag	AP2	4	94.0	58.7	62.4	15.3	26.1	110.1	4.8	8.2	122.9	16.8	28.5	212.8	12.0	0.13	9.6	0.33	7.0	27.0	8.8	510.0	8.69
942 000005140313	927Y	U2	Stag	AP2	5	98.1	61.7	62.9	15.3	24.8	110.1	5.2	8.4	132.6	17.1	27.7	217.3	13.2	0.18	26.0	0.29	6.2	27.0	8.8	541.1	8.77
942 000005676622	614Y	U2	Stag	AP2	5	94.1	57.8	61.4	14.6	25.3	105.0	4.8	8.3	121.7	16.1	27.9	204.9	12.3	0.11	3.7	0.43	9.2	27.0	8.8	492.4	8.52
942 000005676672	280Y	U2	Stag	AP2	3	97.8	56.9	58.2	14.1	24.8	101.4	4.4	7.7	112.1	16.6	29.2	211.4	12.0	0.13	9.6	0.33	7.0	27.0	8.8	489.2	8.60
942 000005670573	53Y	U2	Stag	AP2	3	97.5	56.6	58.1	14.6	25.8	105.0	4.3	7.5	108.4	15.6	27.5	197.9	12.2	0.17	9.6	0.31	6.6	27.0	8.8	475.4	8.40
942 000005140649	YT	U2	Stag	AP2	6	96.7	59.9	61.9	15.1	25.2	108.6	5.2	8.6	131.6	17.1	28.5	217.2	12.4	0.11	3.7	0.35	7.5	27.0	8.8	516.7	8.63
942 000005676765	YT	U2	Stag	AP1	6	118.9	71.7	60.3	16.8	23.4	120.8	6.1	8.5	154.7	21.1	29.5	268.4	15.2	0.13	9.6	0.41	8.7	27.0	8.8	613.2	8.55
942 000005676661	YT	U2	Stag	AP2	6	105.6	61.7	58.4	15.6	25.3	112.2	5.0	8.2	128.0	17.7	28.7	225.0	12.8	0.20	26.0	0.50	10.7	27.0	8.8	550.4	8.92
942 000005104432	YT	U2	Stag	AP2	5	100.8	59.8	59.3	15.2	25.4	109.3	5.0	8.4	127.1	17.0	28.4	216.1	12.4	0.12	9.6	0.35	7.5	27.0	8.8	517.7	8.66
942 000005676678	YT	U2	Stag	AP2	5	98.5	61.0	61.9	15.6	25.6	112.2	5.2	8.6	132.8	17.5	28.6	221.7	12.5	0.10	3.7	0.33	7.0	27.0	8.8	525.6	8.62
942 000005670598	YT	U2	Stag	AP2	6	96.8	58.1	60.0	14.9	25.6	107.2	4.9	8.4	124.6	16.5	28.4	209.7	12.0	0.15	9.6	0.34	7.2	27.0	8.8	506.1	8.71
942 000005676935	YT	U2	Stag	AP2	5 *	102.6	61.5	59.9	14.8	24.1	106.5	5.8	9.4	146.6	17.9	29.1	227.3	12.7	0.12	9.6	0.40	8.5	27.0	6.8	544.7	8.86
942 000005104562	YT	U2	Stag	AP2	5	100.6	58.9	58.5	14.3	24.3	102.9	5.1	8.6	128.5	17.0	28.8	215.4	12.4	0.16	9.6	0.37	7.9	27.0	8.8	512.4	8.70
942 000005676952	YT	U2	Stag	AP2	7	93.8	55.3	59.0	14.0	25.3	100.7	4.7	8.5	119.6	16.2	29.3	205.7	11.2	0.15	9.6	0.38	8.1	27.0	8.8	490.5	8.87
942 000005104523	YT	U2	Stag	AP2	5	100.3	61.2	61.0	15.9	26.0	114.4	5.2	8.5	132.6	16.8	27.5	213.7	12.8	0.10	3.7	0.35	7.5	27.0	8.8	520.3	8.50
942 000005670542	YT	U2	Stag	AP2	4	93.3	55.3	59.3	13.6	24.6	97.8	4.5	8.1	114.1	15.2	27.5	193.3	12.1	0.14	9.6	0.39	8.3	27.0	8.8	471.0	8.52
942 000005140813	YT	U2	Stag	AP2	3	103.7	62.3	60.1	15.3	24.6	110.1	5.5	8.8	139.2	17.5	28.1	222.3	13.2	0.13	9.6	0.38	8.1	27.0	8.8	538.1	8.64
942 000005142304	YT	U2	Stag	AP2	7	97.3	57.5	59.1	14.7	25.6	105.7	4.5	7.8	114.3	16.5	28.6	209.0	12.0	0.13	9.6	0.38	8.1	27.0	8.8	494.4	8.60
942 000005140763	YT	U2	Stag	AP2	5 *	102.0	59.1	57.9	13.8	23.4	99.3	5.4	9.1	137.0	17.0	28.7	215.6	12.6	0.11	3.7	0.35	7.5	27.0	6.8	509.3	8.62
942 000005142140	YT	U2	Stag	AP2	5	98.2	58.8	59.9	15.0	25.5	107.9	4.6	7.9	118.3	16.5	28.0	209.5	12.5	0.15	9.6	0.33	7.0	27.0	8.8	500.4	8.51
942 000005104444	YT	U2	Stag	AP2	3	96.9	58.1	60.0	15.5	26.7	111.5	4.9	8.5	125.7	16.8	29.0	213.9	11.5	0.10	3.7	0.33	7.0	27.0	8.8	509.0	8.76
942 000005142208	YT	U2	Stag	AP2	8	105.4	58.9	55.9	14.3	24.3	102.9	5.0	8.4	126.3	16.8	28.6	213.9	12.5	0.12	9.6	0.40	8.5	27.0	8.8	509.4	8.65
942 000005670325	YT	U2	Stag	AP2	5	94.8	57.2	60.3	14.2	24.8	102.1	4.9	8.6	125.5	16.9	29.5	214.2	11.7	0.16	9.6	0.33	7.0	27.0	8.8	505.8	8.84
942 000005677080	YT	U2	Stag	AP2	4	92.4	56.2	60.8	14.8	26.3	106.5	4.8	8.5	121.9	15.1	26.8	191.4	11.8	0.13	9.6	0.32	6.8	27.0	8.8	483.7	8.61
942 000005670567	YT	U2	Stag	AP2	5	93.3	56.9	61.0	14.1	24.8	101.4	4.7	8.3	120.1	15.8	27.8	201.2	12.2	0.10	3.7	0.32	6.8	27.0	8.8	481.2	8.46
942 000005104527	YT	U2	Stag	AP2	6	95.7	57.4	60.0	14.7	25.6	105.7	4.2	7.3	106.4	15.9	27.7	202.2	12.4	0.11	3.7	0.34	7.2	27.0	8.8	473.4	8.25
942 000005140440	YT	U2	Hind	AP2	8 *	96.9	59.4	61.3	15.8	26.6	113.7	5.1	8.5	128.9	16.4	27.7	208.7	12.2	0.09	3.7	-	-	27.0	8.8	502.8	8.46
942 000005104538	YT	U2	Stag	AP2	6 *	95.1	55.3	58.1	14.0	25.3	100.7	4.8	8.7	122.1	14.8	26.8	188.3	11.9	0.16	9.6	0.39	8.3	27.0	8.8	476.6	8.62
942 000005140568	YT	U2	Stag	AP2	6 *	97.6	57.3	58.7	14.9	26.0	107.2	5.0	8.7	126.2	16.4	28.6	208.3	11.6	0.16	9.6	0.41	8.7	27.0	8.8	507.3	8.85
942 000005676795	YT	U2	Stag	AP2	5	98.0	57.4	58.6	14.8	25.8	106.5	4.4	7.6	111.6	16.9	29.4	214.4	11.7	0.14	9.6	0.35	7.5	27.0	8.8	497.0	8.66
942 000005140654	YT	U2	Stag	AP2	11	93.2	55.0	59.0	13.9	25.3	100.0	4.8	8.7	121.7	15.4	28.0	195.9	11.5	0.10	3.7	0.35	7.5	27.0	8.8	475.9	8.65
Total	37					3,638	2,171	59.7	547	25.2	3,936	182	8.4	4,628	615	28.3	7,813	455	5	339	13	278	997	320	18,766	8.64
Average						98.3	58.7	59.7	14.8	25.2	106.4	4.9	8.4	125.1	16.6	28.3	211.2	12.3	0.1	9.2	0.35	7.5	27.0	8.6	507.2	8.64

## Section 2

### Farmer Tutorials

#### Value Sheet Manual

In order to gain the most benefit from the Value Sheet and improve the overall performance of individual Firstlight Venison farmers and the group as a whole there is a call for individual educational sessions/tutorials help farmers understand the data collected, the value sheet and the large amount of information that can be assimilated and analysed and how to use this information to gain as much benefit as possible.

The following sections follow through the data collection both on-farm and at the processor.

To facilitate the collection of information both on-farm and at the processor EID Tags must, and have been used by FLV for a number of years and are now (1<sup>st</sup> March 2013) a legal requirement.

#### On-farm Data Collection

This section briefly some of the advantages of purchasing and using of Weighing and Electronic Identification Systems on-farm



Monitor



Portable EID Reader



Permanent

## Cost Benefit Analysis of Purchasing EID Equipment

### Assumptions

Cost of tags	\$5.00/head	
Cost of Reader	\$2,200 - \$3,600	
Cost of Indicator	<u>\$1,200 - \$6,000</u>	use for example below \$5,000
	\$3,400 - \$9,600	

Reader and Indicator costs set against the deer farming enterprise

FARM POLICY	Breeding	Breeding/ Finishing	Finishing
Hinds	500	500	
Replacements	75	75	
Finish R1 deer		350	500
Fawning %	85	85	
Av Weaning wgt	56	56	56
Av kg Ccwt	54	54	54
Capital for Reader/Indicator	\$5,000	\$5,000	\$5,000
Capital cost for Tags	\$2,875	\$2,875	
<b>Total Capital</b>	<b>\$7,875</b>	<b>\$7,875</b>	<b>\$5,000</b>
Capital annualised over 5 years	\$1,921	\$1,921	\$1,219
Annual tag cost	\$2,125	\$2,125	
<b>Total Annual Cost</b>	<b>\$4,046</b>	<b>\$4,046</b>	<b>\$1,219</b>
Cost \$/Deer SU wintered	\$3.60	\$2.50	\$1.63
Cost \$/kg produced	\$0.21 kg lwt	\$0.21 kg lwt	\$0.10 kg ccwt
<b>Cost benefit</b>			
At \$ 4/kg lwt kglwt/hd	+2.9 kglwt/hd		
At \$8/kgccwt kgccwt/hd		+1.4 kg ccwt/hd	+0.3 kg ccwt/hd
LWG over 120 - gms/day	25 gms/day	15 gms/day	2.5 gms/day

<sup>1</sup>Acknowledgement: Table supplied by Macfarlane Business Rural Ltd, Nicky Hyslop

By weighing, recording and benchmarking, farmers can make early decisions as to the management of their animals and therefore optimize potential growth throughout the year.

As illustrated above, in order to justify capital outlay of EID equipment and gain the payback over 5 years a breeding operation would need to add an extra 25 gms lwt per day over 120 days to the weaners produced.

A finishing operation would need to add an extra 2.5 gms lwt per day over 120 days.

By monitoring liveweight, feed and animal health with the aid of the EID and weighing recording equipment, these gains can be achieved with relative ease

## On Farm Monitor Usage and Assimilating Information

As can be seen in the example file below the operator can input a large amount of information into the monitor which can be used to monitor breeder origin, drench history, actual growth rates etc, as opposed to the “eye-omitor”, which although useful can be deceptive and result in delayed management decisions.

Electronic ID	Breeder	Date	LWT	Date	LWT	gms/day	Drench	Batch
942 000005142137	Smith	15/08/2011	61.40	15/12/2011	79.90	0.15	Ivomec in	8056
942 000005677194	Smith	15/08/2011	75.60	15/12/2011	89.60	0.11	Ivomec in	8056
942 000005104595	Smith	15/08/2011	68.50	15/12/2011	85.50	0.13	Ivomec in	8056
942 000005676662	Smith	15/08/2011	67.60	15/12/2011	92.60	0.20	Ivomec in	8056
942 000005140613	Jones	15/08/2011	67.20	15/12/2011	78.30	0.09	Ivomec in	8056
942 000005670371	Jones	15/08/2011	72.50	15/12/2011	81.40	0.07	Ivomec in	8056
942 000005140756	Smith	15/08/2011	77.80	15/12/2011	91.80	0.11	Ivomec in	8056
942 000005140313	Smith	15/08/2011	79.60	15/12/2011	99.70	0.16	Ivomec in	8056
942 000005676622	Jones	15/08/2011	66.60	15/12/2011	101.20	0.27	Ivomec in	8056
942 000005676672	Jones	15/08/2011	73.70	15/12/2011	87.70	0.11	Ivomec in	8056

## Sending the data to Firstlight office

All the major manufacturers of electronic readers and monitors also include computer programs which allow the farmer to download the information as a csv. file from the monitor onto to the operators computer where more details analysis of mob and individual animal performance can be managed.

These files are also sent electronically to the Firstlight office for inputting into the data collection system and can be assimilated on the Value Sheet once the animal is processed.

With both finisher and breeder reports being produced this will enable measuring and benchmarking not only for a finisher or breeder/finisher but also for the breeder to determine how their animals are growing once they leave the property.

## Value Sheet Analysis

### On-Farm Data Analysis

This section of the Value Sheet illustrates the on-farm information which has been collected by the farmer and forwarded to the Firstlight office.

Farmer			Live Weight Data						
AB Farming Ltd			LWT Data				Total		
Kill date 1/09/2012			31/03/2012	15/05/2012	kgs/dy	1/09/2012	kgs/dy	Kgs/dy	Sex
Boning Date 2/09/2012			EID	VID	Breeder				
000005142137	685Y	Smith	51.4	61.4	0.24	97.70	0.62	0.24	Stag
000005677194	533Y	Smith	60.6	79.4	0.45	103.60	0.66	0.22	Stag
000005104595	1628Y	Smith	53.5	69.66	0.38	93.10	0.59	0.20	Stag
000005676662	760Y	Smith	52.6	62.8	0.24	98.00	0.63	0.23	Stag
000005140613	198Y	Jones	52.2	67.2	0.36	99.30	0.63	0.24	Stag
000005670371	197Y	Jones	57.5	75.8	0.44	96.50	0.62	0.20	Stag
000005140756	1447Y	Smith	62.8	86.3	0.56	94.00	0.60	0.16	Stag
000005140313	927Y	Smith	64.6	82.4	0.42	98.10	0.63	0.17	Stag
000005676622	614Y	Jones	51.6	67.5	0.38	94.10	0.60	0.22	Stag

#### Glossary

Farmer: AB Farming Ltd  
 Kill Date: 01/09/2012  
 Boning Date: 02/09/2012

In order to maintain cut conformation and minimize weight loss carcasses are held overnight in a chiller fitted with spray chill system to cool to 4°C.

EID: Individual electronic identification

VID: Individual visual identification

Breeder: The Breeder that the weaners were purchased from.

WWT: Weaner weight at purchase

Live weight: Weight data recorded throughout the animal's life.

This is valuable information when combined with meat yield data in order to identify certain genetic lines and breeders.

kg/day Growth rate since last weaned

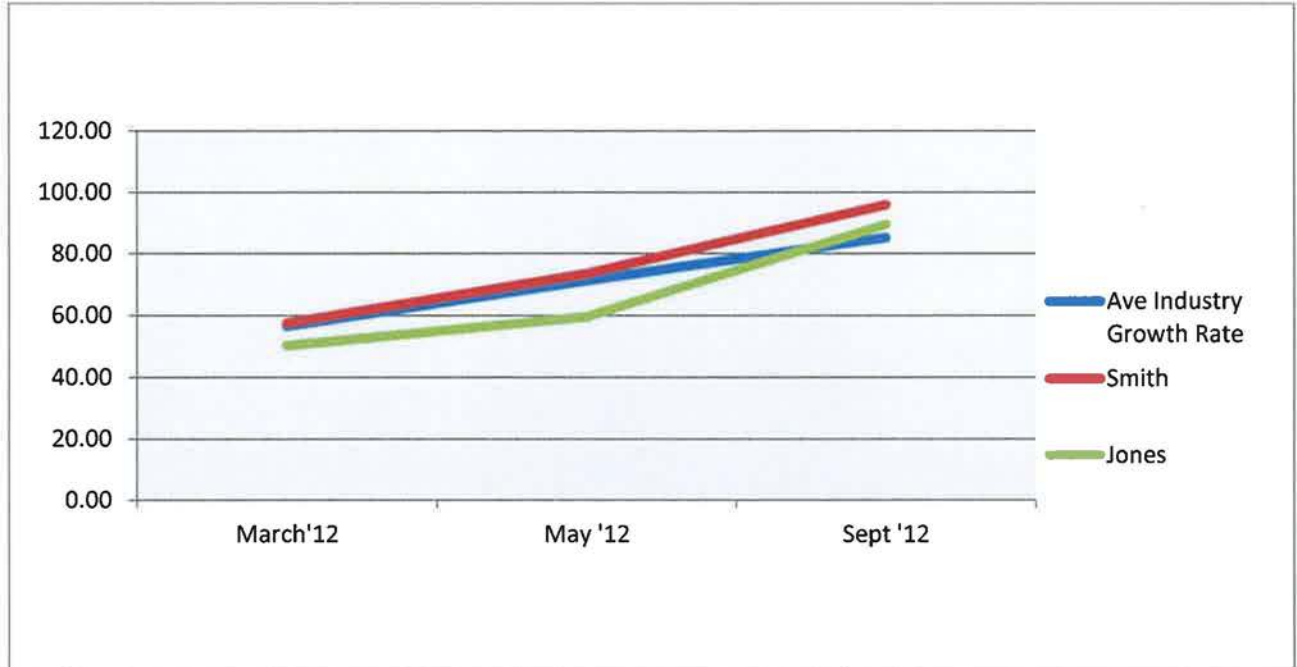
Total kg/dy Growth rate over lifetime of animal since weaning

Age: Age of individual animal

Sex: Identification of Hind or Stag

The information if the farmer wishes, can then be evaluated through graphs in order to enhance and simplify the analysis of live weight growth rates.

**Growth Rate Comparison Graph**



As can be seen in the table below the margin between the two lines of weaners, when the value sheet information is taken into account is \$0.31/hd better for Smith weaners, even though the Jones deer killed at lighter carcass weight they yielded similar high value meat and cost less as weaners.

	WWT	Weaner \$	LWT @ kill	CCWT	CC \$	\$ Margin
Smith	57.50	\$ 239.20	97.43	58.71	\$ 506.92	\$ 267.72
Jones	55.00	\$ 228.80	96.93	57.18	\$ 496.21	\$ 267.41
						\$ 0.31 per head

## Slaughter Plant Data Collection

### Individual Animal Liveweight Analysis at Slaughter

The deer enters the “knock-box” when the EID ear tag is read by the portable EID reader. This information is linked to a unique carcass identifier attached to the carcass skid and entered into the system.



Portable EID reader  
Electronic capture of live animal information



Carcass skid which follows the carcass throughout the slaughter and boning process



Carcass skid on weigh station rail next to skid EID reader

These are duplicated through the process and recorded at various weigh stations.

### Live Weight Station.

Captures the animals live weight on the hoist prior to animal being bled



The solenoid restricts the carcass from proceeding until the liveweight data has been successfully entered.

### **Carcass Weight and Grade Recording**

Electronic carcass information is captured, including hot carcass weight and grade, GR mm (fat depth) measurement, offal status (edible vs inedible).



### **Carcass Weight and GR recording Station**

The carcass is also passed by Ministry of Primary Industry inspectors at this stage



Printed carcass ticket with electronic information as a back-up to the electronic identification  
The photo also illustrates the fine spray in the chiller.



Carcass moved to chiller and spray chill system  
The spray chill system minimises weight loss whilst the carcass is in the chiller and decreasing the time taken to reach optimum chill temperature of 4 °c for boning.

### **Value Sheet: Individual Animal Liveweight Analysis at Slaughter**

This section of the Value Sheet contains the liveweight, carcass weight and yield % of the individual carcass. Farmers can analyse this data and compare with recorded on-farm data in order to identify higher growth rate genetic lines which in turn lead to heavier carcass weights.

EID	Age	Sex	Grade	GR Dg	LWT	CCW	Yield%
942 000005142137 ->	U2	Stag	AP2	6	97.7	59.2	60.6
942 000005677194 ->	U2	Stag	AP2	5	103.6	56.2	54.2
942 000005104595 ->	U2	Stag	AP2	6	93.1	57.2	61.4
942 000005676662 ->	U2	Stag	AP2	5	98.0	61.4	62.7
942 000005140613 ->	U2	Stag	AP2	5	99.3	57.1	57.5
942 000005670371 ->	U2	Stag	AP2	6	96.5	56.9	59.0
942 000005140756 ->	U2	Stag	AP2	6	94.0	58.7	62.4
942 000005140313 ->	U2	Stag	AP2	5	98.1	61.7	62.9
942 000005676622 ->	U2	Stag	AP2	4	94.1	57.8	61.4
942 000005676672 ->	U2	Stag	AP2	6	97.8	56.9	58.2
942 000005670573 ->	U2	Stag	AP2	4	97.5	56.6	58.1

### Glossary

EID: Individual electronic identification

Age: Age of individual animal

Sex: Identification of Hind or Stag

**Grade:**

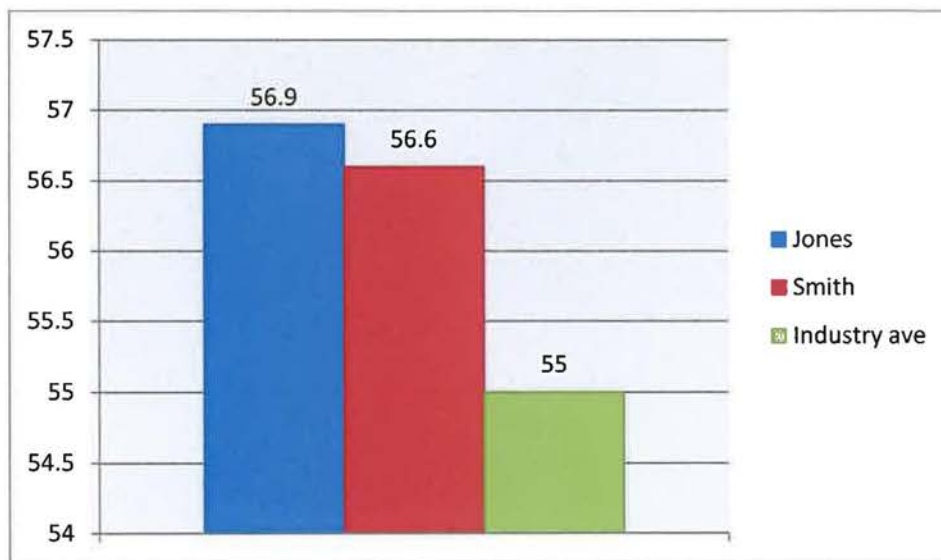
GR mm: GR (Grevilles Reference) - the measurement, in millimetres, of the depth of fat taken at the 12<sup>th</sup> rib on a carcass

Dg: Carcass down grade reason – see the glossary at the end of the manual for abbreviations

LWT: Live weight of animal recorded at kill

CCW: Cold weight of carcass measured at entry to boning room

Yield %: Percentage of carcass weight divided by liveweight of the animal



Carcass Weight Comparisons

The information derived from the value sheet can assimilated in graph form in order to easily identify differences. In the chart above the deer of Jones are clearly heavier at 56.9 kg ccwt.

### Meat Yield Analysis of Individual Carcass

This section of the Value Sheet contains the meat yield information of cuts, the weight of those cuts percentage yield and value of the individual carcass. Farmers can analyse this data and when combined with the balance of the data, compare genetic lines and breeds as to the higher meat yield animals.

Carcass weight post chill



The cold weight is recorded as the carcass is moved to the boning room  
Boning rail - shows skid EID readers and load cells (weighing)

### Shoulder Weigh Station



Records carcass residual weight once the shoulder cuts are removed.

### Middles Weigh Station



Middles as saddles, short/tender loin or racks weighed and recorded.  
Depending on market requirements and weight of the carcass determines whether the middles are sold as saddles, short/tender loin or racks and are brought back to a standard value for calculation on the Value Sheet.

## Hind Leg Weigh Station



Hind leg weights individually are recorded once the bone is removed  
Hind leg scales and bins

### Value Sheet: Meat Yield Analysis of Individual Carcass

EID	Shoulder			Middles			Legs		
	-> Kgs	Yield %	\$	Kgs	Yield %	\$	Kgs	Yield %	\$
942 000005142137	-> 14.7	24.8	105.7	4.8	8.1	121.9	16.5	27.8	209.0
942 000005677194	-> 14.2	25.2	101.9	4.9	8.7	124.7	15.3	27.2	194.4
942 000005104595	-> 14.5	25.3	104.3	4.7	8.1	118.3	16.0	27.9	203.0
942 000005676662	-> 15.3	24.9	110.1	5.8	9.4	146.3	17.8	29.0	226.0
942 000005140613	-> 14.4	25.2	103.6	4.5	8.0	115.6	16.4	28.8	208.6
942 000005670371	-> 14.6	25.7	105.0	4.7	8.2	118.7	16.2	28.5	205.7
942 000005140756	-> 15.3	26.1	110.1	4.8	8.2	122.9	16.8	28.5	212.8
942 000005140313	-> 15.3	24.8	110.1	5.2	8.4	132.6	17.1	27.7	217.3
942 000005676622	-> 14.6	25.3	105.0	4.8	8.3	121.7	16.1	27.9	204.9
942 000005676672	-> 14.1	24.8	101.4	4.4	7.7	112.1	16.6	29.2	211.4

#### Glossary

EID: Individual electronic identification

#### Shoulder

Kgs: Kilograms of meat yield from shoulders

Yield: Percentage of kilograms of shoulder meat divided by carcass weight

\$: Value of kilograms of shoulder meat multiplied by market value

#### Middles

Kgs: Kilograms of meat yield from middles

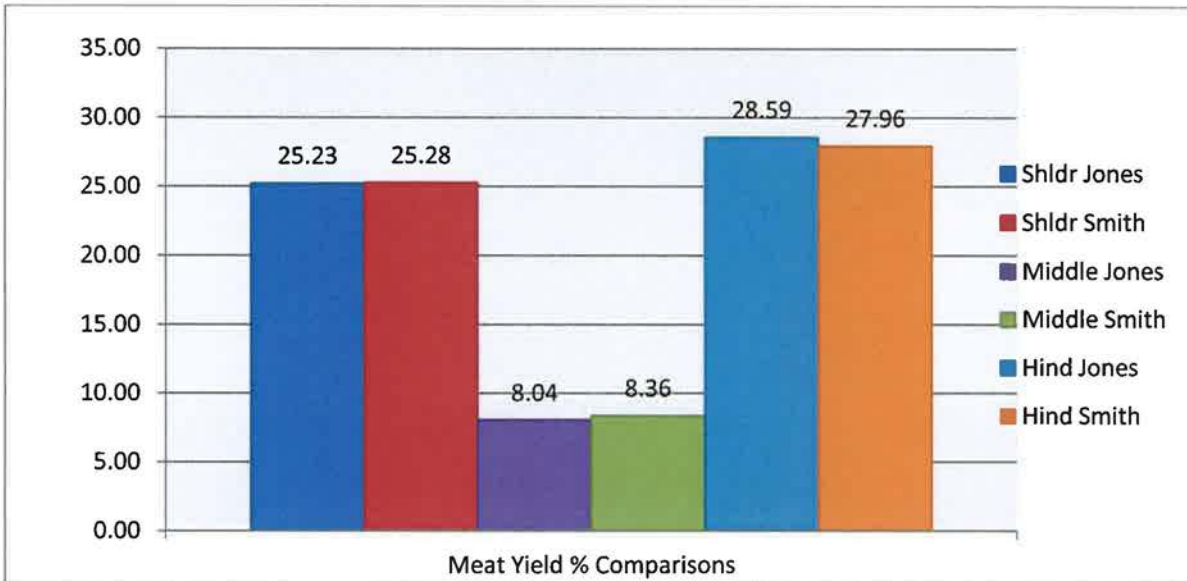
Yield: Percentage of kilograms of middles divided by carcass weight

\$: Value of kilograms of middles cuts multiplied by market value

Depending on market requirements and weight of the carcass determines whether the middles are sold as saddles, short/tender loin or racks.

Legs

- Kgs: Kilograms of meat yield from hind legs
- Yield: Percentage of kilograms of hind leg meat divided by carcass weight
- \$: Value of kilograms of hind leg cuts multiplied by market value



Although very similar yield percentage are recorded there will lines of deer that the margins significantly greater and therefore management and selection decisions can be easily made.

**Co-Product Collection and Recording**

This section of the Value Sheet contains the information from tails, pizzles, skins and “other” from individual animals are linked to carcasses and are weighed, measured and recorded. The “other” value is linked to edible offals such as liver, sinews etc. There is a large variation in weight and value of co-products which can be analysed to identify higher value genetic lines and breeds.

Tails



Tails are individually weighed, measured and recorded

Pizzles



Pizzles are weighed, measured and recorded

Sinews and tendons



(Other) Sinews and tendons are bulk weighed and averaged

### Value Sheet: Co-product Analysis

EID		Trim	Tail		Pizzle		Skin	Other
		\$	Kgs	\$	Kg	\$	\$	\$
942 000005142137	->	12.8	0.14	9.6	0.37	7.9	27.0	8.8
942 000005677194	->	12.0	0.17	9.6	0.34	7.2	27.0	8.8
942 000005104595	->	12.1	0.10	3.7	0.36	7.7	27.0	8.8
942 000005676662	->	12.4	0.13	9.6	0.42	8.9	27.0	8.8
942 000005140613	->	12.0	0.19	26.0	0.34	7.2	27.0	8.8
942 000005670371	->	11.8	0.12	9.6	0.38	8.1	27.0	8.8
942 000005140756	->	12.0	0.13	9.6	0.33	7.0	27.0	8.8
942 000005140313	->	13.2	0.18	26.0	0.29	6.2	27.0	8.8
942 000005676622	->	12.3	0.11	3.7	0.43	9.2	27.0	8.8

#### Glossary

EID: Individual electronic identification

Trim: Value of trimmings

Tail:

Kgs: Weight of individual tails

\$: Value of individual tails

The weight and length of individual tails can vary greatly within lines of deer, both within the same breed and between breeds. This is an area that can be identified and analysed to make significant gains in value of the individual animal.

Tail Weight Ranges	
From	To
0.0001	0.0567
0.056799	0.1134
0.113498	0.1701
0.170197	0.2268
0.226896	10.0000

#### Pizzle

Kg: Combination of weight and length of individual pizzle

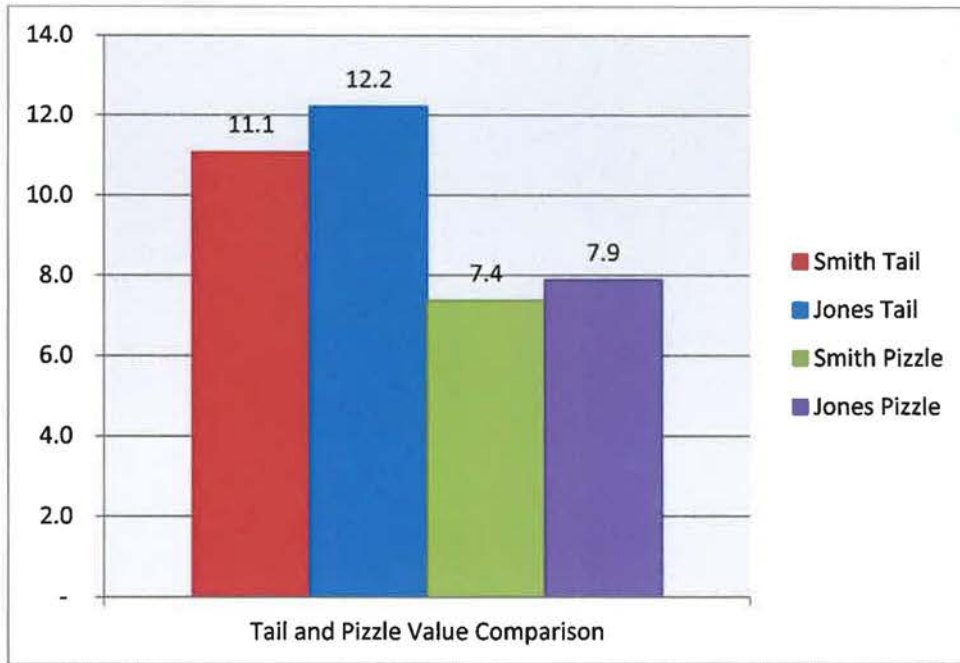
\$: Value of individual pizzle

The weight and length of individual stag pizzles can vary greatly within lines of deer, both within the same breed and between breeds. This is an area that can be identified and analysed to make significant gains in value of the individual animal.

Pizzle Length Table (inches)			
<10	10-12	12-14	>14

Skin: Value of individual skin/hide

Other: Value of edible offal's such as liver, heart etc



As can be seen above the value of Jones co-products, tail and pizzle are greater even though the liveweight and carcass weight are smaller.

## Totals

### Evaluating total per kilogram value and carcass value

This section of the Value Sheet summarises the total value of individual carcasses as well the line of animals processed. Farmers can analyse this data to identify higher total value individual animals or genetic lines of animals and when combined with the balance of the data can influence breeding programs and buying decisions.



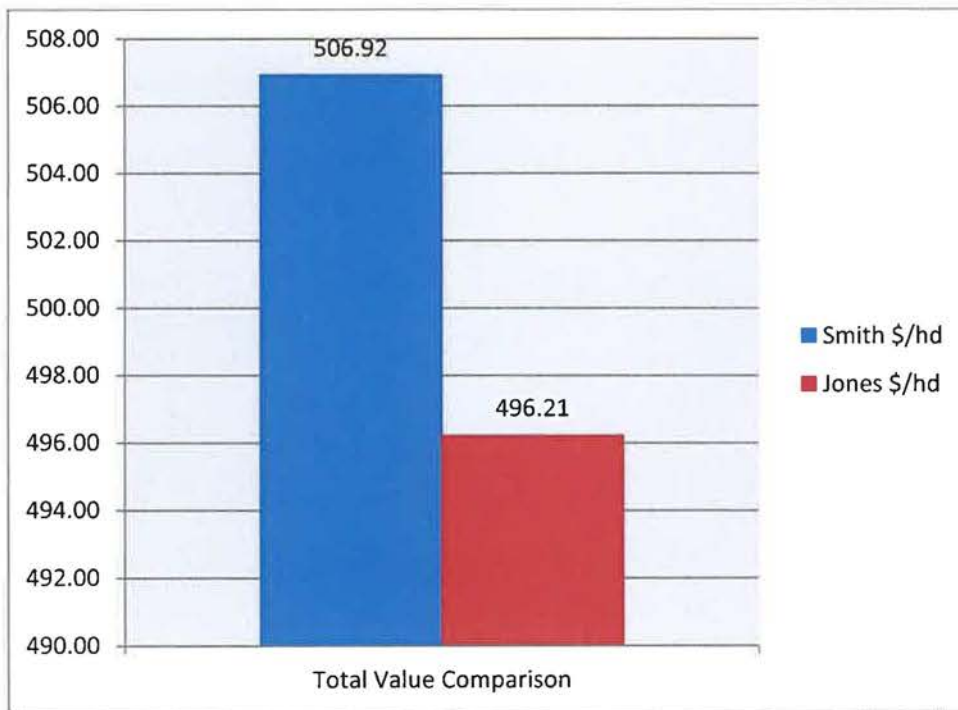
Packing, weighing and labelling the FLV cartons ready for export.



**Value Sheet: Totals**

EID	->	LWT	CCW	->	Total	
					\$/hd	\$/kg
942 000005143029	->	97.70	59.20	->	502.58	8.49
942 000005689104	->	103.60	56.20	->	485.52	8.64
942 000005106470	->	93.10	57.20	->	484.82	8.48
942 000005107061	->	98.00	61.40	->	548.98	8.94
942 000005106309	->	99.30	57.10	->	508.68	8.91
942 000005669611	->	96.50	56.90	->	494.54	8.69
942 000005689066	->	94.00	58.70	->	510.01	8.69
942 000005689583	->	98.10	61.70	->	541.11	8.77

- EID: Individual electronic identification
- LWT: Live weight of animal recorded at kill
- CCW: Cold weight of carcass measured at entry to boning room
- \$/hd: Gross value of individual carcass
- \$/kg: Gross per kilogram value of individual carcass. Per head value is divided by carcass weight.



As can be seen in the chart above there is difference of \$10.71/hd in return between each line of deer but as mentioned earlier when the purchase price is taken into account

**Note**

Where there is no or unreliable data due to a system error, the average for that line of animals processed is used. The record is calculated by using the average yield% for that data.

## Payment Sheet Summary Sheet

This accompanies the detail sheet as a summary for the farmer supplier to review the herd as an average and determine the nett and total value of the line processed

<b>Farmer</b>	AB Farming Ltd						
<b>Kill date</b>	20/08/2012						
<b>Boning Date</b>	21/08/2012						
		CCS	CCW	CCW/hd	Value \$	\$/hd	\$/kg
Stag		50	3,183	63.7	28,540.05	570.8	8.97
Hind		-	-		-		
<b>Total value</b>		50	3,183	63.7	28,540.05	570.8	8.97
<b>Less Pool adjustments</b>							
Provisional pool accrual	\$0.85 per kg				(2,705.55)		(0.85)
Seasonal weighting	11%				3,139.41		0.99
Kill fee	50 @ \$40.75				(2,037.50)		(0.64)
Average cartage	50 @ \$12.5				(625.00)		(0.20)
<b>Net value</b>					<b>26,311.41</b>		<b>8.27</b>
<b>Charges and levies</b>							
Supply mgmt fee	50 @ \$6				300.00		
Missing EID	0 @ \$8				-		
DINZ levies	3183 @ \$0.07				222.81		
AHB Levies	3183 @ \$0.05				159.15		
Johnes contribution	50 @ \$0.8				40.00		
MAF inspection fee	50 @ \$12				600.00		
					1,321.96		0.42
<b>Nett total</b>					<b>24,989.45</b>		<b>7.85</b>
<b>Incl GST</b>					<b>28,737.87</b>		

### Glossary

Farmer Individual shareholder or contract supplier to Firstlight Venison (NZ) Ltd  
 Kill date Date the animals are slaughtered  
 Boning date Date the animals are processed through the boning room

CCS Total number of carcasses processed  
 CCW Total kilograms of venison processed  
 CCW/hd Average carcass weight per animal  
 Value \$ Total gross value of venison processed  
 \$/hd Total average gross value per carcass processed  
 \$/kg Total average gross value per kilogram of venison

Less Pool Adjustments	
Provisional pool accrual	Deduction of estimated year end pool payment
Seasonal weighting	Addition or deduction of seasonal weighting depending on time of the year
Kill fee	Deduction of processing charge
Average cartage	Deduction of average cartage cost
Charges and levies	
Supply mgmt fee	Deduction of supply management fee – set annually
Missing EID	Deduction for missing EID tags (industry penalty from 1 <sup>st</sup> March 2013)
DINZ Levies	Deduction of Deer Industry New Zealand levy
AHB Levies	Deduction of Animal Health Board levy
Johnes contribution	Deduction of Johnes research contribution levy
MAF inspection fee	Deduction of Ministry of Primary Industries inspection fees
Nett total	Total nett value of venison processed
Incl GST	Total nett value including GST

## Trend Analysis

The introduction of the data collection project will allow for identification and measurement of the following indices, with the Value Sheet applying economic measurement to the data.

1. On-farm management:
  - i. Growth rates: Comparing weaner weights and timing as they affect the ability of the finisher to gain the optimum seasonal growth rates to obtain heavier carcass weights.
  - ii. Genetics comparison: Both in breeds and between breeds ie Eastern vs English Red bloodlines, Wapiti and crossbreds.
  - iii. Animal health and nutrition: ie drench and disease resistance, supplementary crops and feeds.
  - iv. Seasonal variability of kill supply
  - v. Farming systems – Geographical variances as well as individual farm management practices. These can be influenced through benchmarking and focus farm programmes
  - vi. Other - individual farmer analysis requirements
2. Yield comparisons :
  - i. Genetic variations within Breeds: Reds, Wapiti, Crossbreds
  - ii. Sex variability – females are thus far proving to be higher in yielding in the hind quarters, have heavier tails and no pizzle (!?).
  - iii. Other - individual farmer analysis requirements.
3. Identifying high value individual cuts
  - i. Value per cut – targeting factors influencing high value cuts ie genetic, management, harvest, market
  - ii. Yield per cut - the amount of meat harvested from each cut
  - iii. Meat quality and taste – developing techniques identify influencing factors
  - iv. Other - individual farmer analysis requirements
4. Co-products
  - i. Skins – seasonal variability and downgrading issues such as scarring
  - ii. Sinews
  - iii. Edible offal's – downgrading issues such as parasite damage in livers
  - iv. Pizzles – factors influencing length and weight ie sex, age, breed
  - v. Tails – factors influencing length and weight ie sex, age, breed
  - vi. Other - individual farmer analysis requirements
5. Downgrades
  - i. Bruising factors – seasonal variability and management factors including transport and yarding practices
  - ii. Parasite damage in offal's – seasonal variability and management factors
  - iii. Arthritis damage – influencing factors
  - iv. Johnes disease – vaccinated v non vaccinated
  - v. Other - individual farmer analysis requirements
6. Total per head value
  - i. Processing costs – economics of processing heavier deer
  - ii. Achieving total carcass optimization

- iii. Other - individual farmer analysis requirements
7. Other
- i. Industry costs and levies

## Section 3

### Conclusion

#### The Value Sheet

The Firstlight Venison data collection system measures actual meat yield as opposed to other industry participants who are estimating yield through among other technologies x-ray's and scanning machines which will only ever be an educated guess. While the move to understand meat yield throughout the livestock industry is a positive move the next "quantum leap" is actually applying yield based payment system to which Firstlight Venison is now instigating.

There will be a number of farmers to which the system will penalise in the same way that better animals will be worth more; poorer animals will be worth less than under the current system.

In order to drive industry performance and initiate true transparency throughout the supply chain new innovations need to be instigated. The Firstlight Value Sheet is but one step in this process of rewarding farmers for productivity while also collating data to allow farmers to make significant gains on-farm through considered and knowledgeable decision making processes.

As the data collected increases over time the trends and analysis derived from this project will allow the Firstlight Venison market to understand the product better and also allow for complete traceability. The primary goal however is to enable Firstlight Venison producer group farmers to increase on-farm productivity which will in turn lead the deer industry.

## **Acknowledgements**

The Firstlight Foods and Venison Packers teams have spent a huge amount of time and effort to initiate the data collection project and get to the stage where now collate the huge amount of data produced and apply market values to create the Value Sheet .

Many thanks to Gerard Hickey and the rest of the management team for allowing me the opportunity to attend the Kellogg Rural Leaders Programme and for assisting in the creation of this project summary.

<sup>1</sup>Table supplied by Macfarlane Business Rural Ltd, Nicky Hyslop