

FARM DEER PRODUCTION - QUALITY vs QUANTITY



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QUALITY: a rather loose term which defies easy definition as it means different things to different people in the deer production, processing, marketing to consumer chain.

In simplistic terms from a producers perspective quality can or should be measurable as product price at the farm gate. If this is not the case we can develop quality criteria but it is naive to expect producers to respond by adjusting farming systems to meet these if it is not reflected in some form of economic advantage.

However the producer has a moral obligation to ensure the product is produced from animals where animal welfare practices are of a high standard and the product contains no factors harmful to human consumption.

Quality from the producers viewpoint can be considered in terms of:

- Volume of production
- Timing of supply
- Weight
- Grade
- Fat cover

These are also the key factors that influence profitability.

PRODUCTION SYSTEMS

Deer production systems can broadly be categorized into:

- **Breeding** - producing weaners for sale or finishing
- **Weaner Finishing** - Hinds or Stags, targeting slaughter weights before their second winter
- **R.2.Yr.Deer Finishing** - autumn to slaughter in the spring
- **Velveting**
- **Other Trading/Finishing Policies** - represented by a wide range of options depending on buy and sell timing for a range of deer classes.

This paper summarises the profitability of some of these options and illustrates the impact of targeting "Quality Production" on overall financial performance.

BREEDING

The key production factors influencing Breeding Hind profitability are reproductive performance and weaning weight.

Table 1 compares the Gross Margin profitability of Low and High Breeding Hind performance.

TABLE 1: BREEDING HIND GROSS MARGIN - IMPACT OF PERFORMANCE

	Low Performance	High Performance
Hind Value	\$300	\$350
Stock Unit Rating		
Hind	1.8 su/hd	1.8 su/hd
Wnr.Hind	1.5 su/hd	1.5 su/hd
Calving %	80%	90%
Wnr.Stag Wt.	46 kg	50 kg
Wnr.Hind Wt.	43 kg	47 kg
Wnr.Stag Value	\$154 (\$3.35/kgLwt)	\$180 (\$3.60/kgLwt)
Wnr.Hind Value	\$103 (\$2.40/kgLwt)	\$134 (\$2.85/kgLwt)
Gross Margin (Before Interest)		
Gross Margin/Hind	\$105 /hind	\$127 /hind
Gross Margin/su	\$52 /su	\$62 /su
Gross Margin (After Interest)		
Gross Margin/Hind	\$60 /hind	\$85 /hind
Gross Margin/su	\$34 /su	\$42 /su

For each 5% increase in Calving % the Gross Margin increases \$3.50/su
 For each 2.5kg increase in Weaning Wt.the Gross margin increases \$3.17/su

WEANER STAG FINISHING

This is perhaps the most common venison finishing policy. However in practice there exists a wide variation in performance and profitability which is primarily a reflection of the liveweight gain profiles achieved.

The following analysis compares the relative profitability of low vs medium vs high liveweight gain weaner stag finishing options.

TABLE 2: WEANER STAG FINISHING - IMPACT OF PERFORMANCE ON PROFITABILITY

	Low Performance	Medium Performance	High Performance
Start L.Wt	50 kgs	50 kgs	50 kgs
Winter L.Wt Gain	50 g/day	100 g/day	150 g/day
Spring L.Wt.Gain	250 g/day	275 g/day	300 g/day
December L.Wt.	84 kgs	97 kgs	110 kgs
Stk Unit Rating	1.67 su/hd	1.94 su/hd	2.20 su/hd
Stags/ha (cc=12su/ha)	7.2 stg/ha	6.2 stg/ha	5.5 stg/ha
Gross Margin (Before Interest)			
Gross Margin/Stag	\$66 /stag	\$92 /stag	\$118 /stag
Gross Margin/su	\$39.46 /su	\$47.49 /su	\$53.80 /su
Gross Margin/ha	\$473 /ha	\$570 /ha	\$646 /ha
Gross Margin (After Interest)			
Gross Margin/Stag	\$45 /stag	\$74 /stag	\$104 /stag
Gross Margin/su	\$26.81 /su	\$38.27 /su	\$47.15 /su
Gross Margin/ha	\$322 /ha	\$459 /ha	\$566 /ha

Appendix 1: gives a detailed breakdown of the methodology of calculating the feed requirements and stock unit ratings on a winter basis for the targeted growth profile for the medium performance option. This should be standard practice in the developing of management systems and the setting of performance targets.

Appendix 2: provides more detail on the calculation of the Gross Margins for each option.

Yearling Stag Sale Timing

The optimum timing for sale of stags is a function of:

- liveweight gain
- schedule decline

The following table illustrates the impact of these two factors on the nett stag value for a particular scenario.

TABLE 3: IMPACT of KILL TIMING ON YEARLING STAG VALUE

	End October	End November	End December	End January
Days		30	30	30
Growth Rate g/day		270	250	200
End Mth L.Wt. (kgs)	95	103	111	117
Kill Out %	55.0%	55.5%	56.0%	56.5%
Carcass Wt. (kgs)	52.3	57.2	61.9	65.9
Schedule \$/kg	\$6.25	\$5.75	\$5.35	\$5.05
GIB Levy (\$/kg)	\$0.28	\$0.28	\$0.28	\$0.28
Charges \$/hd	\$5.00	\$5.00	\$5.00	\$5.00
Nett Value \$/hd	\$307	\$308	\$309	\$309

In the above case where high growth rates are being achieved large schedule declines (\$0.30-\$0.50/mth or \$1.20 over a 3 month period) are required before the nett value/stag is less than the early kill option.

For the last two seasons schedule declines over this 3 month period have been \$0.28/kg for 1991/92 and \$0.89/kg for 1992/93.

However there are many other farm management factors that are also important in this decision.

R.2.Yr. STAG FINISHING

The following analysis has been prepared to highlight the impact of buy timing and performance in terms of stocking rate and liveweight gain on the profitability of finishing R.2.Yr.Stags from an autumn purchase to slaughter the following spring.

Options Considered are:

- **Early Purchase** (March) with a spring liveweight gain of 300 grams/day vs 350 grams/day.
- **Late Purchase** (June) with a spring liveweight gain of 300 grams/day vs 350 grams/day.

Purchase price for all options is \$3.00/kg L.Wt. The later purchase allows higher stocking rates to be wintered. The high liveweight gain profile requires lower stocking rates to achieve the target. Appendix 3 provides the detailed analysis a summary is shown in table 3.

TABLE 4: R.2.Yr STAG FINISHING PROFITABILITY

	March Purchase		June Purchase	
	Medium Performance	High Performance	Medium Performance	High Performance
Buy L.Wt	85 kgs	85 kgs	85 kgs	85 kgs
Winter L.Wt.Gain	0 g/day	0 g/day	0 g/day	0 g/day
Spring L.Wt.Gain	300 g/day	350 g/day	300 g/day	350 g/day
Carcase Wt	58 kgs	67 kgs	58 kgs	67 kgs
Stk Unit Rating	2.04 su/hd	2.33 su/hd	1.54 su/hd	1.83 su/hd
Stags/ha	5.88 stg/ha	5.15 stg/ha	7.79 stg/ha	6.56 stg/ha
Gross Margin (Before Interest)				
Gross Margin/Stag	\$79 /stag	\$135 /stag	\$79 /stag	\$135 /stag
Gross Margin/su	\$39 /su	\$58 /su	\$51 /su	\$74 /su
Gross Margin/ha	\$465 /ha	\$695 /ha	\$616 /ha	\$885 /ha
Gross Margin (After Interest)				
Gross Margin/Stag	\$62 /stag	\$118 /stag	\$69 /stag	\$124 /stag
Gross Margin/su	\$30 /su	\$50 /su	\$45 /su	\$68 /su
Gross Margin/ha	\$366 /ha	\$606 /ha	\$534 /ha	\$813 /ha

The key points to note are:

- the high growth profile provides a slaughter carcass weight 9kgs higher than the low growth option and improves profit per hectare by \$250+/ha.
- to achieve the high growth option stocking rates need to be reduced by approx 15%.
- the delay in purchase timing from March to June allows stocking rate to be increased by approx 30% and increases profit per hectare by \$170/ha.

VELVETING 2.Yr. STAGS

An extension of the above policy is to retain 2 Year Stags to after velvetting before slaughter.

Factors influencing the profitability of this option are:

- relativity of velvet price to venison price
- decline in venison schedule from Oct/Nov to Jan/Feb periods
- decline in grading through over fatness in slaughtered stags
- increase in liveweight over the period stags are held for velvetting

The following analysis gives an indication of the relativity between these factors to produce a breakeven situation.

Example:

2.Yr.Stag Velvet Yield	-	1.0kg/hd
Schedule Decline (Nov to Jan)	-	\$1.35/kg C.Wt.
Increase in Carcass Wt (Nov to Jan)	-	9kg (over 60 days ie.58kg to 67kgs)

Impact on Returns:

Velvet	1.0kg/stg @	\$50 /kg		
	less Fees	(\$15)/stg	-	\$35/stag increase
January kill	67kg @	\$4.85/kg =	\$325	
November kill	58kg @	\$6.20/kg =	\$360	\$35/stag decrease

Thus at \$40/kg for 2.Yr.Velvet the venison schedule has to decline (due to a schedule decline and poorer grading) by \$1.35/kg C.Wt for returns to equate.

For the past two seasons the schedule decline for this period has been:

- 1991/92 \$0.30/kg
- 1992/93 \$0.92/kg

Percentage Grading Fat

Appendix 4 details the venison schedule for the 1991/92 and 1992/93 seasons for Prime and Trimmer grades. From this it can be seen that the differential for overfatness ranges:

- for 65kg Stag from \$1.40-\$1.67/kg for 1991/92 and \$0.99-\$2.46/kg for the 1992/93 seasons.
- for 75kg Stag from \$1.21-\$1.50/kg for 1991/92 and \$1.32-\$2.62/kg for the 1992/93 seasons.

TABLE 5: IMPACT of % GRADING TRIMMER ON SCHEDULE VALUE

% Grading Trimmer	Av.Sch Value @	Av.Sch Value @
	\$1.00/kg Discount	\$2.50/kg Discount
0%	\$6.00	\$6.00
10%	\$5.90	\$5.75
20%	\$5.80	\$5.50
30%	\$5.70	\$5.25
40%	\$5.60	\$5.00
50%	\$5.50	\$4.75

Although the impact of grading T on an individual stags value is significant the impact on the average for the line is the key point to consider. For each 10% grading T the average decline equates to \$0.10-\$0.25/kg.

VELVET PRODUCTION

The following analysis highlights the relationship of velvet yield (kgs/hd) and velvet price on the profitability of a velvetting enterprise.

TABLE 6: VELVETING GROSS MARGIN (after Interest)/STOCK UNIT

Velvet Wt Kgs/hd	Velvet Price (\$/kg nett)				
	\$75	\$100	\$125	\$175	\$225
2.0	\$9	\$29	\$49	\$89	\$129
2.5	\$24	\$49	\$74	\$124	\$174
3.0	\$39	\$69	\$99	\$159	\$219

The analysis is based on the following assumptions:

- An established mixed age herd of stags with replacements bought in
- Stag rated at 2.5su/stag after adjusting for a generous level of supplementary feed
- Gross margin costs of:

	\$/hd	
Replacements (10% nett of sales)	\$15.00	
Freight	\$2.00	
Losses (2%)	\$10.00	
Supplementary Feed	\$36.00	
Velveting Fees	\$15.00	
Interest	\$50.00	

	\$128.00	(\$51/su)

It is clearly evident that velvetting profitability is highly sensitive to both price and yield:

- at 2.5kg Velvet/Stag, for each \$25/kg change in velvet value the Gross Margin varies \$24/su
- at \$100/kg Velvet Price, for each 0.5kg/hd change in velvet yield the Gross Margin varies \$20/su

The minimum velvet price required to break even with a sheep/cattle enterprise producing a Gross Margin of \$40/su is:

- \$112/kg @ 2.0 kgs Velvet/Stag
- \$89/kg @ 2.5 kgs Velvet/Stag
- \$74/kg @ 3.0 kgs Velvet/Stag

Stag quality in terms of velvet yield and velvet grading is all important.

APPENDIX - 1

GROWING STAG FEED REQUIREMENTS: Red Weaner Stag to Yearling - Medium Growth

	START Mth	LWG	END Mth.	MID-Mth	CARCASS	FEED	FEED	
	DAYS	L.Wt.	Kgs/day	L.Wt.	L.Wt.	WT.Kgs	KgsDM/Day	per Mth
YEAR 1								
JANUARY	31							
FEBRUARY	28			50				
MARCH	31	50	100	53	52	29	1.63	51
APRIL	30	53	150	58	55	31	1.85	56
MAY	31	58	150	62	60	34	1.94	60
JUNE	30	62	100	65	64	36	1.86	56
JULY	31	65	100	68	67	37	1.92	59
AUGUST	31	68	100	71	70	39	1.98	61
SEPTEMBER	30	71	150	76	74	42	2.19	66
OCTOBER	31	76	250	84	80	46	2.59	80
NOVEMBER	30	84	250	91	87	50	2.72	82
DECEMBER	31	91	250	99	95	55	2.85	88
YEAR 2								
JANUARY	31	99	200	105	102	59	2.82	87
FEBRUARY	28	105	100	108	107	60	2.60	73

SUMMARY	FEED REQUIREMENTS (Kgs DM.)				LIVEWEIGHT GAIN (grams per Day)				
	YEAR 1	YEAR 2	YEAR 3	YEAR 4	MONTHS	YEAR 1	YEAR 2	YEAR 3	YEAR 4
JAN-APRIL	106	160			JANUARY		200		
					FEBRUARY		100		
MAY-AUG	237				MARCH	100			
					APRIL	150			
SEPT-DEC	316				MAY	150			
					JUNE	100			
	659	160			JULY	100			
					AUGUST	100			
STOCK UNIT RATING					SEPTEMBER	150			
					OCTOBER	250			
ANNUAL BASIS					NOVEMBER	250			
@ 550 Kgs DM./ SU	1.20	0.29			DECEMBER	250			
WINTER BASIS									
@ 120 Kgs DM./ SU	1.97								

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APPENDIX 2

GROSS MARGIN: Weaner Stag to R.2.Yr.Stag

	Liveweight Gain		
	Low	Medium	High
Stock Units/hd	1.67	1.94	2.20
Buy L.Wt.kgs	50	50	50
Buy \$/kg L.Wt.	\$3.90	\$3.90	\$3.90
Carcass Wt. kgs	53	53	53
Venison Value	\$5.50	\$6.00	\$6.50
GIB Levy	(\$0.28)	(\$0.28)	(\$0.28)
Venison Value Nett	\$5.22	\$5.72	\$6.22
Deaths %	1.0%	1.0%	1.0%
Months Farmed	13	11	9
Buy/Opening Value	(\$195)	(\$195)	(\$195)
Sell/Closing Value	\$277	\$303	\$330
Spiker Velvet	\$10	\$10	\$10
Costs			
An.Health	(\$5.00)	(\$5.00)	(\$5.00)
Freight In	(\$5.00)	(\$5.00)	(\$5.00)
Freight Out	(\$8.00)	(\$8.00)	(\$8.00)
Levies/Charges	(\$5.00)	(\$5.00)	(\$5.00)
Deaths	(\$2.77)	(\$3.03)	(\$3.30)
Interest @ 10%	(\$21.13)	(\$17.88)	(\$14.63)
Profit \$/hd (Before Interest)	\$65.89	\$92.13	\$118.36
Profit \$/su (Before Interest)	\$39.46	\$47.49	\$53.80
Profit \$/hd (After Interest)	\$44.77	\$74.25	\$103.74
Profit \$/su (After Interest)	\$26.81	\$38.27	\$47.15

SENSITIVITY

For each \$10/hd change in buy Price equates to - \$5.99

For each \$0.10/kg change in Schedule equates to - \$3.17

PROFIT/ha - assuming Carrying Capacity of: 12 su/ha

	Liveweight Gain		
	Low	Medium	High
Stocking Rate (Stags/ha)	7.19	6.19	5.45
Profit \$/hd before Interest	\$66	\$92	\$118
Profit \$/ha before Interest	\$473	\$570	\$646
Profit \$/hd after Interest	\$45	\$74	\$104
Profit \$/ha after Interest	\$322	\$459	\$566

APPENDIX - 3

GROSS MARGIN: R.2.Yr.Stag - 2.Yr.Stag

	Low Growth Rate		High Growth Rate	
	Early Buy	Late Buy	Early Buy	Late Buy
Stock Units/hd	2.04	1.54	2.33	1.83
Buy L.Wt.kgs	85	85	85	85
Buy \$/kg L.Wt.	\$3.00	\$3.00	\$3.00	\$3.00
Carcass Wt. kgs	58	58	67	67
Venison Value Nett	\$6.50	\$6.50	\$6.50	\$6.50
GIB Levy	(\$0.28)	(\$0.28)	(\$0.28)	(\$0.28)
Venison Value Nett	\$6.22	\$6.22	\$6.22	\$6.22
Deaths %	1.0%	1.0%	1.0%	1.0%
Months Farmed	8	5	8	5
Buy/Opening Value	(\$255)	(\$255)	(\$255)	(\$255)
Sell/Closing Value	\$361	\$361	\$417	\$417
Costs				
An.Health	(\$5.00)	(\$5.00)	(\$5.00)	(\$5.00)
Freight In	(\$5.00)	(\$5.00)	(\$5.00)	(\$5.00)
Freight Out	(\$8.00)	(\$8.00)	(\$8.00)	(\$8.00)
Levies/Charges	(\$5.00)	(\$5.00)	(\$5.00)	(\$5.00)
Deaths	(\$3.61)	(\$3.61)	(\$4.17)	(\$4.17)
Interest @ 10%	(\$17.00)	(\$10.63)	(\$17.00)	(\$10.63)
Profit \$/hd (Before Interest)	\$79	\$79	\$135	\$135
Profit \$/su (Before Interest)	\$38.80	\$51.40	\$57.76	\$73.54
Profit \$/hd (After Interest)	\$62.15	\$68.53	\$117.57	\$123.95
Profit \$/su (After Interest)	\$30.47	\$44.50	\$50.46	\$67.73

SENSITIVITY

- # For each \$10/hd change in buy Price equates to - \$4.90 /su
 # For each \$0.10/kg change in Schedule equates to - \$2.84 /su

PROFIT/ha - assuming Carrying Capacity of: 12 su/ha

	Low Growth Rate		High Growth Rate	
	Early Buy	Late Buy	Early Buy	Late Buy
Stocking Rate (Stags/ha)	5.88	7.79	5.15	6.56
Profit \$/hd before Interest	\$79	\$79	\$135	\$135
Profit \$/ha before Interest	\$466	\$617	\$693	\$882
Profit \$/hd after Interest	\$62	\$69	\$118	\$124
Profit \$/ha after Interest	\$366	\$534	\$606	\$813

APPENDIX 4

VENISON SCHEDULES - 1991/92 & 1992/93

VENISON SCHEDULE - 1991/92

Grade C.Wt.	AP 55	AP 65	AP 75	AT 65	AT 75
July	\$4.42	\$4.38	\$4.28	\$2.95	\$2.78
August	\$4.23	\$4.03	\$3.87	\$2.63	\$2.50
September	\$4.23	\$4.03	\$3.87	\$2.63	\$2.50
October	\$4.58	\$4.28	\$3.97	\$2.63	\$2.50
November	\$4.60	\$4.30	\$3.92	\$2.63	\$2.50
December	\$4.57	\$4.27	\$3.69	\$2.77	\$2.45
January	\$4.63	\$4.30	\$3.73	\$2.80	\$2.45
February	\$4.60	\$4.23	\$3.66	\$2.80	\$2.45
March	\$4.60	\$4.23	\$3.66	\$2.80	\$2.45
April	\$4.60	\$4.23	\$3.66	\$2.80	\$2.45
May	\$4.63	\$4.33	\$3.92	\$2.78	\$2.43
June	\$4.93	\$4.57	\$4.20	\$2.87	\$2.43

Differentials

	AP 65-55	AP 75-65	AP-AT 65	AP-AT 75
	\$0.04	\$0.10	\$1.43	\$1.50
	\$0.20	\$0.16	\$1.40	\$1.37
	\$0.20	\$0.16	\$1.40	\$1.37
	\$0.30	\$0.31	\$1.65	\$1.47
	\$0.30	\$0.38	\$1.67	\$1.42
	\$0.30	\$0.58	\$1.50	\$1.24
	\$0.33	\$0.57	\$1.50	\$1.28
	\$0.37	\$0.57	\$1.43	\$1.21
	\$0.37	\$0.57	\$1.43	\$1.21
	\$0.37	\$0.57	\$1.43	\$1.21
	\$0.30	\$0.41	\$1.55	\$1.49
	\$0.36	\$0.37	\$1.70	\$1.77
Maximum	\$0.37	\$0.58	\$1.67	\$1.50
Minimum	\$0.04	\$0.10	\$1.40	\$1.21
Mean	\$0.29	\$0.40	\$1.51	\$1.38

VENISON SCHEDULE - 1992/93

Grade C.Wt.	AP 55	AP 65	AP 75	AT 65	AT 75
July	\$5.25	\$4.77	\$4.35	\$3.07	\$2.52
August	\$5.42	\$5.07	\$4.38	\$3.13	\$2.66
September	\$6.22	\$5.75	\$5.10	\$3.47	\$2.93
October	\$6.27	\$5.90	\$5.13	\$3.47	\$2.93
November	\$6.30	\$5.93	\$5.55	\$3.47	\$2.93
December	\$5.95	\$5.68	\$5.38	\$3.75	\$3.13
January	\$5.65	\$5.38	\$5.25	\$3.75	\$3.13
February	\$5.63	\$5.33	\$5.28	\$4.02	\$3.57
March	\$5.57	\$5.27	\$5.23	\$4.18	\$3.91
April	\$5.57	\$5.27	\$5.23	\$4.28	\$3.91
May	\$5.60	\$5.27	\$5.23	\$4.28	\$3.48
June	\$5.80	\$5.52	\$5.40	\$4.43	\$3.90

Differentials

	AP 65-55	AP 75-65	AP-AT 65	AP-AT 75
	\$0.48	\$0.42	\$1.70	\$1.83
	\$0.35	\$0.69	\$1.94	\$1.72
	\$0.47	\$0.65	\$2.28	\$2.17
	\$0.37	\$0.77	\$2.43	\$2.20
	\$0.37	\$0.38	\$2.46	\$2.62
	\$0.27	\$0.30	\$1.93	\$2.25
	\$0.27	\$0.13	\$1.63	\$2.12
	\$0.30	\$0.05	\$1.31	\$1.71
	\$0.30	\$0.04	\$1.09	\$1.32
	\$0.30	\$0.04	\$0.99	\$1.32
	\$0.33	\$0.04	\$0.99	\$1.75
	\$0.28	\$0.12	\$1.09	\$1.50
Maximum	\$0.48	\$0.77	\$2.46	\$2.62
Minimum	\$0.27	\$0.04	\$0.99	\$1.32
Mean	\$0.34	\$0.30	\$1.65	\$1.88