

Deer Industry Annual Survey

Results and discussion

Processing returns from last year's Deer Industry Annual Survey is complete. The figures confirm much of what has been evident anecdotally, but provides a sound statistical basis for industry planning and a clearer picture of industry trends. This article outlines the New Zealand deer industry as it stood at 30 June 2005. It is mainly based on results of the DIAS and Statistics New Zealand's provisional results from their Agricultural Production Survey¹ (APS) released on 16 December 2005 (see Point 6).

AT A GLANCE...

- Breeding hind population of 842,000 as at 30 June 2005.
- Weaner base of 670,000 as at 30 June 2005
- Expected weaner base of 630-665,000 as at 30 March 2006.
- Velvet herd (MA stags) of 116,000 as at 30 June 2005.
- Producers slaughter intentions were 717,000 deer to YE 30 June 2006; and
- Producers intended to slaughter 65,000 mixed aged stags to year ended June 2006 which indicated some intention to decrease velvet production.

1. Sample

The DIAS was mailed, then re-mailed to non-responders, then further non-responders were telephoned several times. The DIAS received 3,205 responses, of whom 2,830 were farming deer as at 30 June 2005.

2. Herd size and composition

DIAS returns indicated the following herd size and composition as at 30 June 2005. The results have been extrapolated to Statistics New Zealand's figures to account for non-responders.

	Industry Survey ²	Extrapolation to Statistics NZ figures
Weaner hinds	318,166	340,587
R2 hinds	160,137	171,422
MA hinds	626,052	670,170
TOTAL HINDS	1,134,116	1,182,179
Weaner stags	313,360	330,246
R2 stags	78,658	82,897
MA stags	110,239	116,179
TOTAL STAGS	507,801	529,321
TOTAL DEER	1,649,172	1,711,500
Hinds calving (at 84% of R2 and MA hinds based on responses) ³	658,612	705,024

Table 1: Total deer numbers and hinds calving.

- The Annual Industry Survey as at 30 June 2005 indicated a breeding herd (R2 and MA hinds) of 842,000.
- The DIAS collected 96% of the APS Total Deer figure (noting the 8% margin of error in the APS figures).
- The Statistics New Zealand figures of fawns surviving to weaning as a percentage of hinds mated (which includes, non conception, pre and post natal losses) is 75%.
- Multiplying the breeding population available in the 2004 survey (848,000) by 75% indicates total expected weaners in the 2004 survey of 636,000 in contrast to the DIAS actual return extrapolated to 671,000.
- This discrepancy indicates that the Statistics NZ return likely over-emphasises the net weaning percentage. Other productivity data (McFarlane 2005) suggests that an overall figure of 79% is more relevant. That would predict a weaner base at 30 June 2005 of 669,900 which is very close to the 671,000 recorded in returns.
- The 2005 potential breeding hind pool figure of approximately 842,000 has been predicted to have 84% available for calving, (or 705,000), 2% more than that predicted in 2004.
- If that figure reflects the 10% loss typically recorded in the Deer Master project and various other recording systems, then 634,000 weaners are expected in March 2006.
 - Using Statistics New Zealand figures at 75%, overall

weaning or 75% achievement of reproductive potential, 631,000 weaners are expected to be weaned in March 2006; and

- At 79% achievement, 665,180 weaners would be expected.
- Deer Industry New Zealand believes that the lower figure is more likely given the anecdotally reported numbers of pregnant hinds slaughtered since 30 June 2005 and there appears to be little overall productivity improvement in the critical calf losses from birth to weaning statistic.

3. Herd size

No. of animals on farm	Number of farms	% of farms of those responding	% of deer represented on these farms
0-50	331	12%	0.5%
51-150	602	21%	4%
151-250	411	15%	5%
251-500	573	20%	13%
501-1,000	526	19%	22%
1,001-2,000	278	10%	23%
2,001-3,000	58	2%	8%
3,001-4,000	18	1%	4%
4,001-5,000	6	0.2%	1.6%
5,001-10,000	15	1%	6%
>10,000	5	0.2%	13%

Table 2: Herd size distribution among survey respondents.

Distribution of herd size is shown graphically in Figures 1 and 2:

- The average size of deer farms was 583 deer.
- 33% of farms which returned surveys have less than 150 deer. These farms account for 4% of the herd in survey returns.
- 68% of farms which returned surveys have less than 500 deer. These farms account for 22% of the herd in survey returns.
- 87% of farms which returned surveys have less than 1,000 deer. These farms account for 44% of the herd in survey returns.
- The 26 largest farms account for 21% of the national herd.
- The 4% of largest farms with 2,000 or more deer account for 33% of the herd in survey returns.

Of the total land area of farms with deer on them, 21% of the farm area is deer fenced. This is an indication of the prevalence of mixed farming operations and therefore the ability of most farms to move in and out of deer depending on their circumstances.

4. Intentions

4.a Herd growth or reduction

Respondents provided an indication as to intended changes hind and stag numbers in their herd. This was expressed either as a

change in deer numbers or % changes. Responses were converted to animal numbers and these results are shown below.

INTENTIONS	Stags		Hinds		Stags and Hinds
	Number of respondees	Number of deer	Number of respondees	Number of deer	
Intentions to increase	290	14,101	434	33,618	
Intentions to decrease	923	61,161	983	111,531	
Net change indicated (decrease)		(47,060)		(77,912)	(124,973)
Extrapolated		(48,839)		(80,857)	(129,696)

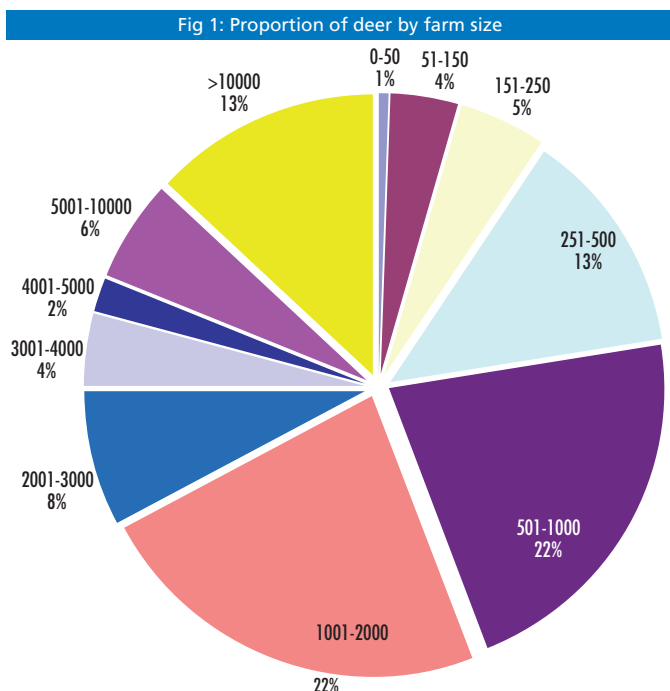
Table 3: Intentions to increase or decrease herd size.

- This is a threefold increase in farmer intentions to decrease exposure to deer over the survey in 2004 (41,000).
- There were 259 survey responses which indicated an intent to exit the deer industry entirely. In addition, 40 intended to exit hinds only and 83 intended to exit stags only. The proportion of those intending to exit entirely comprises 9% of all respondees.
- The average herd size of those intending to exit entirely is 220 in contrast to the average herd size of those intending to increase their holdings at 550.

4.b Producers' intentions to slaughter

	Survey	Extrapolated
Hinds for slaughter <2 yo	177,610	184,323
Hinds for slaughter >2 yo	135,176	140,285
Stags for slaughter < 2 yo	224,790	233,286
Stags for slaughter > 2 yo	62,788	65,161
	690,866	716,976

Table 4: Producers' slaughter intentions between June 2005 and June 2006. NB: care should be taken in using the figures for hind and stag figures by age. Some 90,000 animals intended for slaughter were not broken down by age. Therefore, the individual classes will be understated.

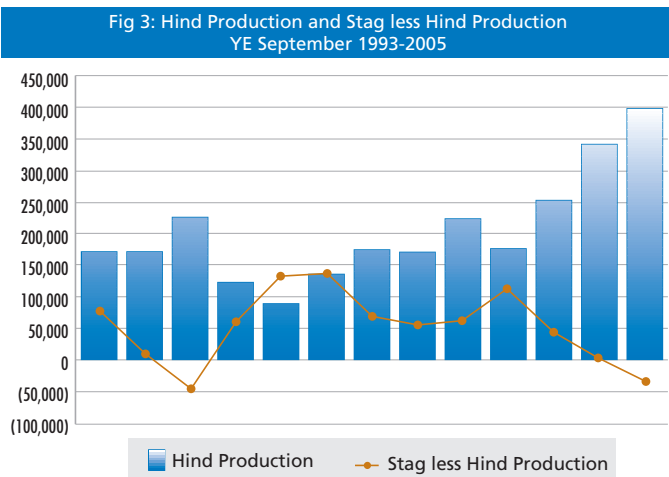
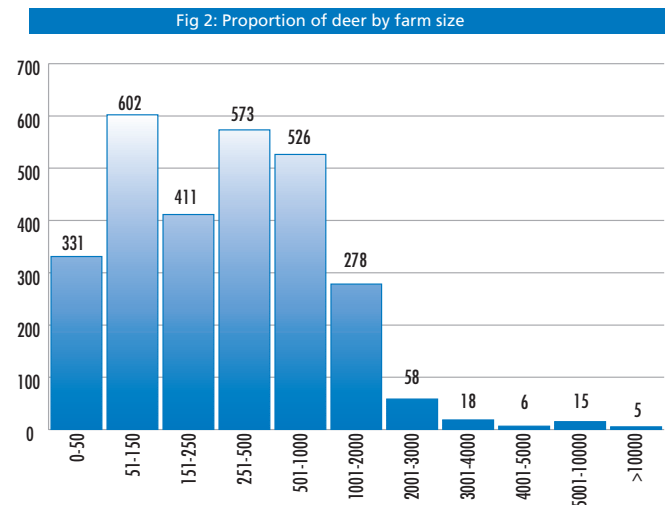


Extrapolated intended total production of 717,000 deer indicates an intention to continue production at high levels. This has been borne out with continued high production. Production to the year ended September 2005 was 762,000 animals.

4.c Velvet stags

The extrapolated number of mixed age stags is 116,000. Assuming that the life of a mature velvet stag is a high 9 years^d (once selected as a 2 year old), the number of MA stags that drop out of the herd each year is around 13,000. The returns show an extrapolated intended kill of 65,000, indicating an intended decrease in the size of the velvet herd of about 50,000 stags. That indicates a potential reduction of 130 tonnes of velvet. To some extent that may be compensated by the seemingly high number of 2 yo stags farmers have indicated they will retain. That figure could be 40,000-50,000. Accuracy is partially compromised as a large number of returns did not break their intentions for slaughter down by age group or class. There are some 90,000 animals intended for kill unallocated by class and age.

It is reasonable to expect that owing to the reported difficulty in securing space for aged stags, younger animals will have been slaughtered in preference and much of that velvet (130 tonne reduction anticipated) will be removed and in the system for 2005/06). Deer Industry New Zealand anticipates some reduction and is aware that significant numbers of young and old stags have also been grown out for evaluation. This will lower total volume slightly as well.



5. Production

Aside from the DIAS, venison production statistics over time give an indication of changes within the national herd. If one assumes that the velvet herd remains relatively constant over time⁵, it is logical that the difference between hind and stag production is an *approximate* indicator of changes to capital stock.

Table 5 below shows production for the year ended September 1993 to 2005. This is shown graphically in Figure 3.

	TOTAL	STAGS	HINDS	S-H
1993	420,374	248,878	171,088	77,790
1994	351,699	180,803	170,665	10,138
1995	408,678	181,212	227,133	(45,921)
1996	309,066	184,295	123,995	60,300
1997	311,749	222,324	89,425	132,899
1998	407,405	271,690	135,715	135,975
1999	420,337	245,676	174,661	71,015
2000	404,471	230,898	173,573	57,325
2001	508,995	286,320	222,675	63,645
2002	464,620	288,576	176,044	112,532
2003	550,263	297,056	253,207	43,849
2004	683,234	343,312	339,922	3,390
2005	762,427	364,484	397,943	(33,459)

Table 5: Production for YE Sept 1993-2005

The last significant retention of hinds was in 2002 when 113,000 less hinds were slaughtered than stags. Since then, this has decreased to (33,000) despite a large increase in stag kill.

Velvet herd

The extrapolated velvet herd is estimated at 116,000 MA stags. Assuming an average weight of 2.6 kg per stag, this indicates SA, A, B, C of 302 tonnes. Records from pools extrapolated to the national herd estimate SA, A, B, C of 282 tonnes. The difference is equivalent to 20 tonnes of frozen velvet or 7,700 stags assuming 2.6 kg per stag.

Thanks!

Deer Industry New Zealand sincerely thanks producers for completing the survey. There have been many calls from producers for more information on changes in the national herd and intentions. We hope that you find this useful and that you examine the numbers so that you form your own view on industry prospects. We welcome your comments and any discussion. Contact Mark O'Connor, Deer Industry New Zealand, PO Box 10-702, Wellington or mark.oconnor@deernz.org.

And the winners are...

The Branch with the largest proportion of producers who returned the mailed survey was Taranaki. They have been sent a cheque for \$1,000 towards Branch activities. The producer who won the draw of producers who sent in the survey was Max Winders of Ngongotaha. He has also been sent a cheque for \$1,000. Congratulations.

Further information

- Last year's Annual Industry Survey Results: www.deernz.org/resources
- Statistics New Zealand's Agricultural Production Survey: <http://www.stats.govt.nz/agriculture>, then click on Agricultural Production Survey
- 2005 Deer Monitoring Report: <http://www.maf.govt.nz/statistics/primaryindustries/farm-monitoring/deer.htm>

6. Statistics New Zealand's Agricultural Production Survey

For completeness, Statistics New Zealand's provisional results from its APS are reprinted below.

Deer Numbers ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾					
Year	Year to 30 June	At 30 June		Year to 30 June	
	Female deer mated ⁽⁵⁾	Total deer		Fawns born on the farm ⁽⁶⁾	
1993					
1994	543,100	1,231,100		..	
1995	508,600	1,178,700		..	
1996	541,700	1,192,100		..	
1997	..	..		..
1998	..	..		..
1999	834,100	1,676,800		..	
2000	..	..		..
2001	..	..		..
2002	891,300	1,647,900		654,700	
2003	885,600	1,689,400		670,400	
2004	868,900	1,759,100		700,400	
2005	815,400	P	1,711,500	P	648,100 P
⁽¹⁾ There was no agriculture production survey conducted in 1997, 1998 and 2001. In 2000 the survey related only to horticulture. In 1994 and 2002, an agricultural census was conducted.					
⁽²⁾ The population for the 2002 Agricultural Production Census and subsequent surveys differs from that of previous agricultural censuses and surveys. Figures from 2002 onwards may not be directly comparable with previous years.					
⁽³⁾ Estimates have been rounded to the nearest 100.					
⁽⁴⁾ Changes were made to the question design in the 2004 and 2005 Agriculture Production Surveys. Figures for 2004 and 2005 may not be directly comparable with those from previous years.					
⁽⁵⁾ Number of female deer mated and still on the farm at 30 June.					
⁽⁶⁾ In 2005, data relates to fawns born on the farm that were alive at four months. In 2003 and 2004, data relates to fawns weaned on the farm. In 2002, data relates to fawns born on the farm.					
Symbols: P = provisional .. = not applicable					

Table 6: Statistics New Zealand deer herd figures from Agricultural Production Survey.

(Article footnotes)

- ¹ The Agricultural Production Survey included 40% of deer farms in Statistics New Zealand's survey population. The provisional survey information provided on 16 December 2005 has a margin of error of 7-8% at a confidence level of 95%.
- ² The total hind and stag numbers in the DIAS do not equal the sum of the different classes within each gender because in some cases respondents provided total stag and hind numbers only. Further, as some respondents only provided total deer numbers, the total stag and hind numbers do not equal the total deer numbers provided. The extrapolated figures use the relative % in each sex and class from the DIAS to estimate total herd composition.
- ³ Estimations based on past returns of calves born and weaned from hinds calving is 95% (i.e. 5% loss from birth to weaning).
- ⁴ Note that the life of a stag is open to debate and a factor for culling for performance once older than 3 yo has not been included. As such, the average life of a stag could be closer to 5 years which would mean herd replacements would total 23,000 rather than 13,000.
- ⁵ Clearly this is a large assumption. For example, at present velvet production appears to be decreasing, and there was a significant decrease in the late 1990s following the Asian Economic Crisis. However, the purpose is to provide a 'rough guide'. 