

Big Deer Tour 2022

VELVET MARKETING AND PROCESSING

Rhys Griffiths (DINZ Velvet Marketing Manager) started with an introduction about marketing of velvet to Asia and the velvet products manufactured by these countries. An explanation into the Deer Industry going from a “dying” industry in 2009 to a \$100+ Million Industry today because the industry marketed velvet to health companies from wholesalers. Over 90% of NZ velvet is exported to South Korea (the second largest market being China). I learnt that velvet is not in fact the fuzzy outside of the antlers but the non calcified stage of antler growth and widely consumed in Asia in traditional medicines. Velvet health products have anti-fatigue and immune function properties.



A visit to Provelco Velvet Processors with Ross and Edmund showed their current stock of the last of the season's velvet. Velvet must be transferred to cold storage (frozen) within 2 hours of being cut and a tag put on each antler for traceability, velvet is then mostly freeze dried for export to Asia. We were shown a few sticks of velvet and what to look for when grading it.



The grade determines the price per kg velvet farmers receive as well as where each grade was exported to. The 'jelly tip' of the antlers being the most valuable part.

Velvet is graded on:

- Traditional vs Non-traditional (conformation)
- Circumference
- Length and Weight
- Type: Spiker, Re-growth, Hard Velvet or Antler

This is an example of traditional antlers, they are not too long. They were described to have relatively even weight distribution. These were graded as Super A Traditional.

VENISON COOKING CLASS

The cooking class was a great opportunity to learn tips and tricks in the kitchen from Graham Brown when preparing food and cooking a perfect medium rare venison medallion. Tasked with preparing BBQ venison tacos with a kumara salsa and avocado coriander cream it was a great way to get creative as we were encouraged to not follow the recipe too closely. It was an unreal experience learning from the best of the best - and getting a mean feed at the end of it was just the icing on the cake.



LINCOLN HILLS DEER MILKING

The deer milking struck my interest, firstly because I hadn't been so close to live deer before and secondly it being a very new process and early stages of new product development. They milk 300 deer at Lincoln Hills which produce about 1 litre of milk each, costing at about \$60 a litre to produce and process it does not make it a very profitable business. The milk (and cheese) was richer and creamier tasting than cow's milk. Due to the high fat and protein content there is a greater content of solid residue in the vat. It was interesting to see that they were looking into developing a co-product from this residue, this minimises waste and gets the most out of their processing. I also was surprised to see how calm the deer were and how smoothly the milking process went. I look forward to hearing about the progress of deer milking in processing efficiency for profitability and the current product development.



FARM VISITS - SOUTH CANTERBURY AND CENTRAL OTAGO



Growing up in Northland - the region with probably the lowest percentage of deer farms meant my knowledge or experience with deer was very minimal. We visited two farms in South Canterbury and one in Central Otago - both regions with terrain very different to what I was brought up with. The farms were a mix of breeding and finishing farms.

Melior Venison, Fairlie - Tom Macfarlane
Clayton Station, Fairlie - Hamish and Anna Orbell
Kinvara, Middlemarch - Brent and Sandra McKenzie



A discussion on their main issues faced in deer farming and a common problem was finding workers. The misconception that deer are dangerous animals to work with and that people with little to no experience shied away from applying or giving deer farming a go.

LEATHER CO-PRODUCTS

We talked to Barry Parsons, who was in the business of sales and export of NZ deer leather. It was very refreshing to hear someone be so passionate about their job and industry. We were given a brief overview of the processing of leathers after being received from meat processing plants. It was a surprise to find out that leathers used to be processed fully in New Zealand but are now exported to China to be finished and coloured. Barry had some opinions and ideas around the processing plants needing to do more to the skins before going to a tannery, or to even process their leathers themselves. I did not know that deer leather was more premium than sheep, cattle or even rabbit leathers and are widely used in premium designer products such as bags, gloves and clothing items. Hearing about how he accidentally got involved in the leather industry it was pretty cool that it became his dream job. It inspires me to accept every opportunity as it comes, even though it may not be part of the plan, it could end up being the greatest decision I ever make.



DEER SCIENCE AT AGRESEARCH

Jamie Ward welcomed us to AgResearch in Invermay and had arranged a few presenters to educate us on some of the current research being done within the Deer Industry. There was so much information to take in and such a wide range of topics covered.

Epigenetic Clocks in NZ Livestock

epigenetics

noun **BIOLOGY**

1. the study of changes in organisms caused by modification of gene expression rather than alteration of the genetic code itself.
"epigenetics has transformed the way we think about genomes"

Examples of what controls epigenetics - diet, stress, smoking, exercise.

Different livestock species in NZ were tested to develop a model of epigenetic age versus chronological ages of animals using DNA methylation, with an accuracy in deer of 171 days. This research could be used to determine whether the velveting process has an effect on the epigenetic age of the deer. Epigenetic Age > Chronological Age could indicate high levels of stress etc. in the animal

Stock Impact on Waterways

Monitoring the phosphorus and nitrogen levels on different farm waterways in both North and South Islands' to determine impact of deer on water quality.

- Water quality at the top of the waterways (where no livestock is grazed) was similar to the bottom of the waterways
- Higher nitrogen levels in North Island properties
- Higher phosphorus levels in the National Parks than on farms



We were told that it is hard to know what is considered a 'normal' level of NNN and P in the waterway as it is constantly changing at different times of the year. Environmental DNA is a low cost way to determine what other organisms may be associated with the waterway

Stock Behaviours

GPS systems were used to monitor the behaviours of 200 deer on the Invermay Farm. The technology tracked the movements of the deer indicating their productivity such as weight gain from grazing. Grazing peaks were observed before sunrise, 9am and 6pm. The data also showed that deer grazing on kale grazed less than those on pasture as it kept them full for longer.

Johne's Disease

Johne's in deer is a major issue that the Deer Industry have been dealing with over the years. DeerPRO have been committed to spreading awareness of Johne's to farmers, vets and venison processors in New Zealand. They monitor the disease on a database. Johne's is a disease in the small intestine that causes a drop in production because nutrients cannot be absorbed. This results in the animals, particularly deer, to waste away and eventually die. It is identified as lesions or pus in the intestine and usually found by quality assurance at processing plants. Most commonly found in young deer, from being ingested through milk or faeces of infected deer.

Deer Genetics

Sharon McIntyre talked to us about the breeding genetics of both Wapiti and Red deer and factors that affect growth other than genetics such as mature weight, carcass weight, conception date, CARLA (immune response to parasites) and velvet weights. A number was then formulated based on what type of genetics you wanted to achieve on your farm. These were:

Replacement Early Kill = Growth + Meat + Reproduction + Negative Mature weight

Terminal Index = Growth + Meat

Another few fun facts from Sharon:

- Greater eye muscle area is a preferred taste, relates to tenderness and juiciness of venison
- Hinds eat their fawns faeces, creating antigens to counter infections
- Deer can alter their gestation period

THANK YOU DEER INDUSTRY NZ!

I was overwhelmed with knowledge on all things deer related and I believe I have been given the best introduction into the career opportunities within the deer industry for a future food process engineer. It was pretty clear that I enjoyed the research and product development aspects of the tour but overall was a memorable experience meeting people from all areas of the deer sector. I'd like to thank Rob and everyone at DINZ for making this trip possible (especially with Covid) and letting me be a part of it. To the other students, it was great to connect with people from different regions of the country and fields of study and to have a few laughs along the way... I had an incredible time.

Megan

