Deer Industry News

Deer Industry Conference

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NORTH CANTERBURY
SOUTHLAND

Deer Farmer Honoured
JAMES GUILD, MNZM, REFLECTS ON LIFE IN DEER INDUSTRY

DEEResearch Annual Report
PROGRAMME HIGHLIGHTS, TOTAL INVESTMENT INTO HITTING TARGETS

Deer Industry New Zealand | NZDFA NZ Deer Farmers Association | JUNE/JULY 2017

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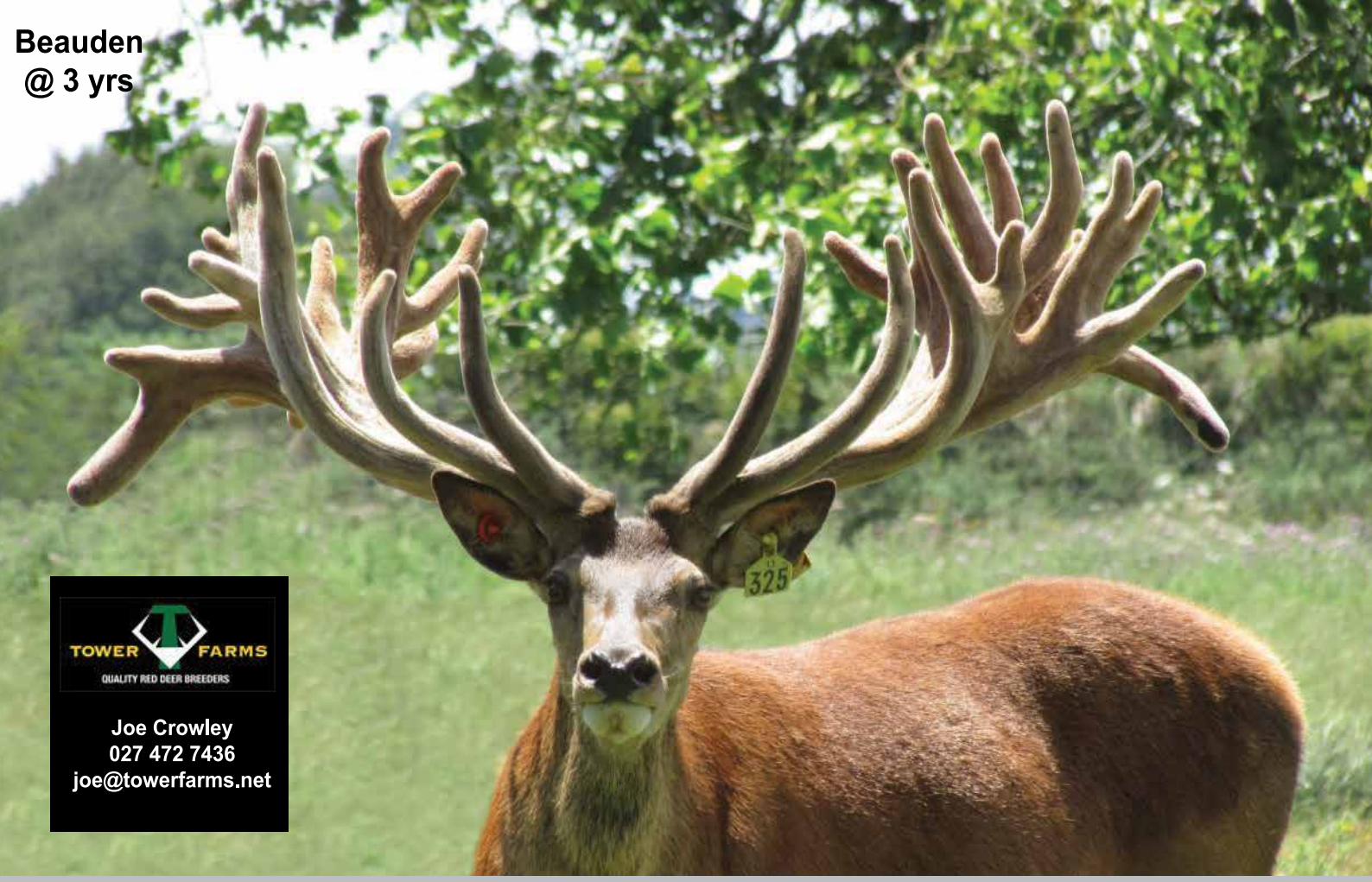

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Deer Industry News

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Showing leadership

How fortunate we are to be part of an innovative and well-led, niche industry – one that has been leading from its very beginnings, 50 years ago.

Gerard Hickey.

AS MANAGING DIRECTOR of a venison (and also Wagyu beef) company, I strongly support the Government's agenda to double exports by 2025. The Primary Growth Partnership (PGP) programme is doing a great job of facilitating the innovation across the primary industry that will help make this happen. For us, that effort is focused in the Passion2Profit (P2P) programme.

Through the Ministry for Primary Industries, the Government is investing up to $7m in P2P. That is split evenly between on-farm and market development activities. This investment is being matched by funds and inputs from the industry and farmers.

On farm, Advance Parties (APs) are reaching critical mass. Twenty-five groups have formed and 30 are expected by year end. An estimated 20 percent of commercial deer farmers are now engaged, which we are told is a key trigger for driving industry change. With the help of external facilitators, the APs are self-driven and managed.

The Marketers' Working Group (MWG) is also gathering momentum. With the support of DINZ and facilitated by former CEO Mark O'Connor, the five exporters meet bimonthly to plan how new markets and new market segments can be best developed.

The planning includes expanding and refreshing the Cervena® appellation for new and existing markets.

The MWG first targeted what's been seen as the holy grail for many years: selling fresh venison in traditional game markets during their spring and summer. This initiative has been underway in the Benelux countries and is now in its third year.

The benefits of success are significant, not just in the higher prices achieved, not just because of the double-sided benefit of having less frozen product to offer, but most importantly because it has created a template for collaboration among the venison exporters. This collaboration is in the form of common focus and levels of communication, the like of which has not been seen before. One of your keynote speakers at last month's Deer Industry Conference talked about the importance of clarity of purpose. The shared vision of the five venison exporters in this programme could not illustrate the point better.

The MWG's collaboration has extended beyond Benelux through new market development in China and now an exploration into the spring/summer period in Germany. Other markets are being considered, including e-commerce channels and the healthy food sector such as those in the United States enjoying the paleo diet.

Exporters are on a roll. Market diversification is growing during a time of supply shortage so that the industry will be more robust and in a stronger position when the deer herd rebuilds and production increases. This diversification is spreading demand, pricing and risk across many more markets than before. It also directly supports the P2P strategic objectives of increasing non-seasonal venison sales and increasing sales to new markets.

Without the PGP, without the leadership of DINZ and the facilitators and the great work being done behind the scenes, it could have been too easy to ride the "short supply game sector" wave to short-term success.

My congratulations to DINZ for driving the initiative, to the Government for the PGP programme and to all those working behind the scenes in the APs and the MWG to bring about change.

Give yourself a pat on the back, deer industry! You're showing leadership once again. ■

– Gerard Hickey, Managing Director, First Light Foods

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Upbeat business breakfast

The industry's "flywheel" is starting to turn and build some momentum. That was one of the metaphors used to describe the state of play for the deer industry at a well-attended business breakfast for business leaders and officials in Wellington on the opening day of the Deer Industry Conference. *Deer Industry News* Editor, Phil Stewart, reports.

OUTGOING DINZ CHAIR, Andy Macfarlane, told guests that biological cycles are slow, but the deer industry was starting to see some good results from its efforts to build productivity and that was energising farmers to do more.

He said the industry was leading the way in productivity "off the plains" and is a real value-added proposition when integrated with sheep and beef. Low price volatility and a light environmental footprint were other pluses for the deer industry.

In the markets, the traditional focus on Oriental Medicine for velvet and Northern Europe for venison was starting to broaden as exporters started to diversify markets. At the same time the make-up of the deer farming industry was changing as a new generation started to take over from the early innovators.

DINZ CEO Dan Coup said farmers were feeling positive at the moment, with both main product groups performing well in their markets. Venison was maintaining a healthy price margin over other proteins, while velvet had enjoyed several years of price stability on the back of growing volumes – albeit with something of a price check in the last season.

Macfarlane said deer still led that way for gross margins in terms of cents per kilogram of dry matter (DM) consumed. Finishing venison offered 28 c/kgDM, and velvet 25.5c/kgDM. Even breeders, who had done it tough some years, were enjoying a respectable 15.1c/kgDM, compared with 10.8c and 14.1c for sheep and cattle respectively. "The dial is starting to swing back for the breeders again with some great store prices," he said.

In line with all drystock, deer numbers had fallen in the face of a rising tide of dairying. However, there were signs that the growth in dairy numbers was levelling off, while the percentage of the total kill that was hinds had pitched down well below 50 percent. Hinds were expected to comprise 47 percent of the kill for the year to June, a good sign that farmers were starting to rebuild breeding herds, Coup said (Figure 1). Macfarlane said the annual deer kill, expected to drop below 300,000 this year, is likely to climb back over 400,000 by 2022, given current trends.

DINZ Chair, Andy Macfarlane, speaking at the breakfast.

In the velvet sector, where production is now about 650 tonnes, several high-profile companies including KGC, LG Healthcare and Lotte Mart are developing high-value products incorporating New Zealand velvet and branded with the New Zealand Velvet "Tick" mark. Coup said it seemed likely that the demand for velvet from Korean Traditional Medicine would continue to shrink, while China's consumption and use, including in Healthy Foods, was expected to continue expanding (See Figure 2).

Looking ahead, Coup said the $15m seven-year P2P programme would remain a major focus. Better alignment of the supply and demand curves for chilled venison required work on both curves – getting more venison ready for the spring chilled market, while extending the demand season out into the northern hemisphere spring and summer.

The launch of the Cervena® appellation in Europe would enable better coordination in

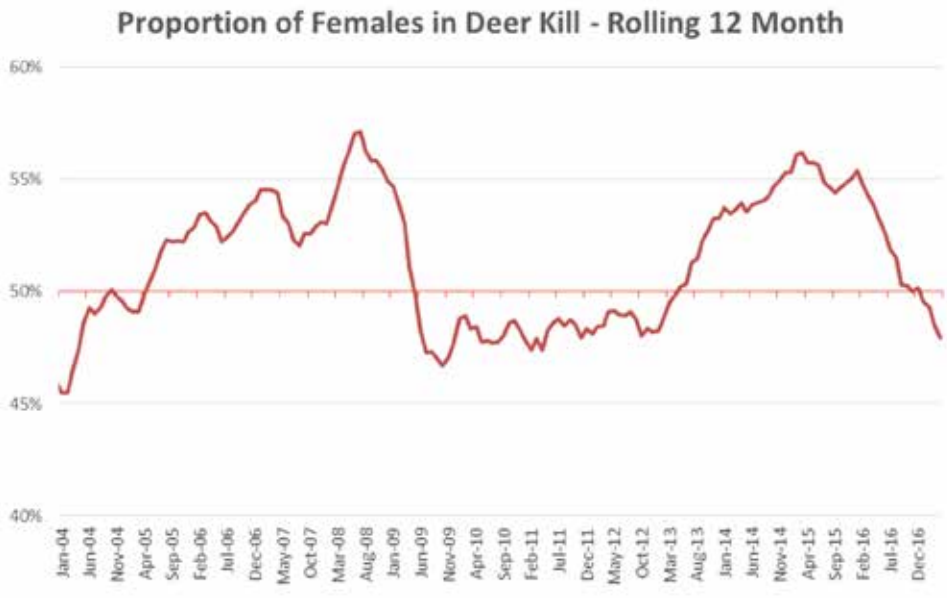

Figure 1: Proportion of hinds in deer kill 2004–2016. Source: DINZ

that market between the five exporters, and would provide a common positioning that the P2P programme could support, rather than individual company brands. Coup said the experience of Hunter McGregor developing a market for venison in Shanghai with Mountain River Venison was being shared with all exporters in the P2P group.

Coup told guests that the Advance Parties were at the heart of on-farm productivity work. One thing that often helped their success was having all key decision makers on farms being involved in a group. This routinely included partners, managers, other staff and multiple generations.

"It's important that we create a direct link between farmers and end customers through the value chain. We're doing this through Industry-Agreed Standards on farm and for processors, and the Transport QA programme." Coup said the Cervena appellation is being linked to the industry standards providing consumers with more robust assurances. Consumers' future desires for product and production credentials of Cervena could also be incorporated into the standards in the future.

In a Q&A session, Hamish Glendinning, Business Development Manager with Landcorp, said venison was front and centre in the company's PĀMU brand because it is a healthy product that speaks for itself. He said an additional 600 hectares of deer fencing at Landcorp's Thornicroft Station in Otago was a sign of its continuing confidence in the industry's future.

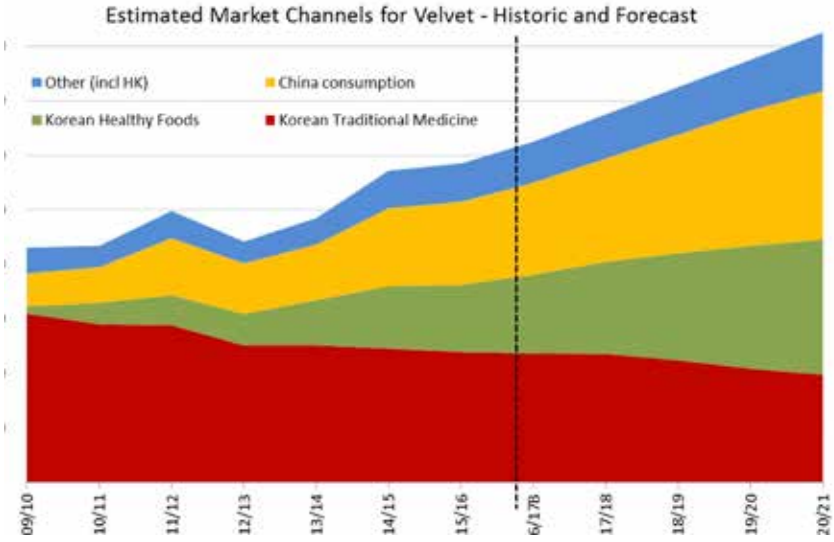

Figure 2: Historical and forecast velvet market channels 2009/10–2020/21. Source: DINZ

Mike Jebson, Chief Executive of the QEII National Trust, said the deer industry had a great story on environmental management through the covenanting of native bush areas and should use it more.

In response to a question about the skilled people needed to support a growing deer industry, Andy Macfarlane said the DFA's Next Generation programme was one initiative that was working well. He said the industry needed to "breed its own hoggets" to create the new leaders it needed with in-market skills. ■

Encouraging signs in markets

by Phil Stewart, *Deer Industry News* Editor

For the first time, the United States has overtaken Germany as an export destination to for New Zealand venison, one sign, perhaps that our traditional markets are starting to evolve.

THAT WAS AMONG the highlights of a "state of the industry" update in the conference opening session by DINZ CEO Dan Coup and Chair Andy Macfarlane.

Coup said the switch from liquidating capital stock to retention, while welcome, would have an impact on staff numbers at slaughter plants that processed deer. He said DINZ would not be seeking a levy increase to compensate for the reduced levy take resulting from lower volumes, so would be cutting its cloth to suit.

The pricing gap between the chilled and "off" season was closing and that was evidence of market diversification starting to have an impact. Carcass weights had also lifted. It was likely there were multiple reasons for this, including people retaining finishing animals longer to get on more weight, the greater proportion of the kill being stags and genuine productivity improvement through better health, breeding and feeding.

The $20 fall in velvet prices was disappointing but unlikely to have been linked to volumes, which were only rising incrementally.

Looking ahead, Andy Macfarlane said there will be a lag of a year or so before the additional breeding stock start to boost production. Now the industry is, like a jet boat, "up and planing", with the growth in alternative markets like the United States and Benelux starting to have an impact.

The challenge is to maintain momentum and – keeping up the jet boat metaphor – Macfarlane warned that the industry needed to avoid "going up a blind braid" while watching out for "rocks in the river". Among these hazards were assuming success from easy cash from good prices would continue. It was important to keep a close watch on measures like earnings before interest, tax, depreciation and amortization (EBITDA) per kilogram of product, while also watching production costs.

Failure to maintain good leadership or care with animal welfare or environmental management were other potential hazards.

Switching to another analogy, Macfarlane recommended being inquisitive and respectful of others' efforts and humble but, like the All Blacks, being relentless in pursuit of greater skill.

"I see a growing hunger for this throughout the value chain." ■

Positive signs despite tight supply

by Phil Stewart, *Deer Industry News* Editor

"Doing more with less" is a mantra usually associated with cash-strapped organisations stretching their budgets. But it could be equally applied to the venison industry, which has been doing the seemingly impossible by diversifying markets at a time of product shortages.

DINZ VENISON MARKETING Manager Marianne Wilson introduced the venison session with compliments to the five exporters for their efforts in broadening their customer base and diversifying markets.

Initiatives such as the sold-out Arby's venison sandwich trial promotion (see *Deer Industry News* December 2016, page 25) were opening access to new sales channels and increasing awareness of venison among new audiences, she said. Other factors that were assisting with widening the appeal of New Zealand venison were the growth in the casual dining sector and a greater emphasis from chefs and consumers actively seeking out ethically produced meat. "The way we are eating is changing – less formal and moving to small plates and sharing; the way chefs and consumers are using their consciences to make purchasing decisions is working well for the New Zealand venison story," she said.

Last year was the second year of the P2P trial to introduce Cervena® to off-season European markets and although volumes hadn't been large, the signs were promising (see more below on this from Jan Kunz). She said the addition of Cervena to the summer business class menu of Belgium's second airline was an example of the way in which perceptions around eating venison in summer were slowly changing.

This year Silver Fern Farms is extending the summer Cervena programme into Germany with Alliance following next year.

There was no doubting that shrinking volumes were creating challenges. The 40 percent drop in supplies to Germany – now overtaken by the United States as our leading market – illustrated this. (For details of market volumes and changes, see page 43.)

Wilson said China would be challenging and require long-term market development, but potential was emerging, not only in the hotel fine dining sector but also in the fusion food scene. Potential new niches in other markets included the rise of paleo style eating in the burgeoning men's health sector, where protein plays a big part; these would be explored as part of the P2P programme.

She concluded by acknowledging the pivotal role played in supporting exporters and their partners by Market Development Manager, Nigel Morris (United States) and Chef Shannon Campbell (Germany), and Executive Chef Graham Brown.

Jan Kunz: Social media where it's at

Keynote speaker Jan Kunz is co-owner with the Luiten family of Luiten Food, a specialised importer and distributor of meat and poultry in the Netherlands. The company has a long-standing partnership with Silver Fern Farms and last year took part in the P2P Cervena trial in the Benelux markets. The company employs 60 and imports from 33 countries.

Jan Kunz (Luiten Food) and Sharon Angus (Silver Fern Farms).

Kunz said the economy in Europe was starting to pick up and this shows in the market for meats: "An eye for quality is back," he said. The company had been importing New Zealand venison for 30 years, so knows the product well.

The market was constantly evolving and that required continuous investment. Kunz said the sustainability of production in New Zealand is a unique selling proposition for Luiten Food. "You tell me [your story] and I'll tell the customer!"

The role of printed marketing material was shrinking and being usurped by the "vloggers and bloggers" on social media, he said. That platform required marketers to be sure their messages were true. He said having DINZ chefs Shannon Campbell and Graham Brown in Europe was a great help in spreading the word about New Zealand venison. The former PPCS had never devoted much to marketing, but that had changed. "Now we can go to the market

with our partners and talk about this sexy product!"

Kunz said food bloggers provided a powerful channel for the venison story. Nina and Elise from chickslovefood.com had over 40,000 Facebook followers and nearly 70,000 on Instagram. They had got right on board with the Cervena story, promoting the product as "hormone free" and healthy, sharing a BBQ recipe with their followers. Venison "clicked" with the bloggers, he said.

A competition with 10 prizes of dinners to a Cervena dinner had received a staggering 50,000 responses. Two girls who won tickets drove a five hour round trip from the East of Holland to enjoy the dinner. Winners share their story on social media, spreading the positive message even further.

Another growth area was the male-friendly and trendy BBQ market. Kunz said BBQ world champion Jord Althuizen was bringing it to Holland with his "Smokey Goodness" website and bestselling book. Althuizen, who runs a food truck and has built a man cave, reportedly "went nuts" for venison and is keen to visit New Zealand to see how its produced.

As with the "Chickslovefood" phenomenon, Althuizen has a big presence across various social media platforms as well as on television.

Kunz said there is still a market for venison in specialised retail outlets and butcheries, but they faced stiff competition from supermarkets.

Luiten Food sold 20 tonnes of New Zealand Cervena in 2016 as part of the P2P trial and is keen to grow that volume this year. He concedes the relatively high price influences volumes. "We need to focus on the story of the animal, the product and its quality. The price should go behind this story."

He ended on a positive note. "Some farmers may be going grey but this is a product for the future! If your deer industry can get its numbers back up, we will be able to keep the price at acceptable levels. Keep up the good work!"

The "Chicks Love Food" site in the Netherlands provides a direct link to tens of thousands of potential customers.

Sharon Angus: Keep updating the story

Sharon Angus, Silver Fern Farms, said the company's brand was New Zealand's most trusted in the meat and poultry segment in 2016, but they are not resting on their laurels.

Consumers in Germany were very sensitive to the story surrounding their food and, while vegan meals were gaining popularity with consumers, those same people also ate high-quality meats at other times. "We are always looking for a marketing edge," Angus said. "It's not just about meat – it's about food and giving chefs the freedom to be creative."

Jord Althuizen is introducing venison to a blokey BBQ market.

Retail sales in New Zealand are now reaching $3 million, she said. The highest growth here had been in the past 12 months. "Get [grass-fed venison] in people's mouths three times and you have them for life."

Interestingly, the biggest selling product here is venison mince. The company was constantly updating ideas to stay in line with trends. One such change was the launch of a slow-cooked "pulled venison" style range, based on traditional secondary cuts.

Angus said media work focused both on farm/origin stories and consumer/food stories. Young German consumers needed to be reminded that the carbon footprint of the New Zealand venison they ate was smaller than for some locally produced food.

Silver Fern Farms was targeting very specific market segments and this required extensive research. "The world of food is changing dramatically and we need to keep up with that."

This would revolve around the cornerstone "100% Made of New Zealand" brand.

"German consumers support brands that match their values," she said. Like Luiten Food in the Netherlands, Silver Fern Farms was communicating with consumers through social media and food bloggers.

Katrina Allan: Avoiding the supply gap

Katrina Allan, Alliance Group, said plenty of work was being done in anticipation of increased venison supplies in future seasons. In the meantime, customers were being urged to "hang in there" with tight supplies. What they can't tolerate is a supply gap, Allan said.

Germany was still very important but other markets such as the United States and United Kingdom were gaining traction, while there was more action outside the traditional game season.

She said a consistent message about free-range, grass-fed, chilled premium product was being maintained during the P2P Cervena trial in Benelux. "It's available from April to August and then it's gone. It's clearly positioned as Cervena – 'now in season' – away from the game season."

Katrina Allan, Alliance Group.

Alliance is targeting a 35 percent lift in Cervena sales this year. Allan said it was pleasing that the Metro stores were positioning it as a premium product. It was imported to Belgium through Bimpex Meat, which distributed it to Metro. "We have a good relationship based on trust and mutual respect," she said.

It was pleasing to see the stores giving great prominence to the product, which was positioned alongside Alliance's lamb.

The next step was to sell Cervena through importer Alexander Eyckeler in selected Metro stores in Germany in 2018. "It's a challenge but we need to step up."

John Sadler: A promotion gone viral

John Sadler, Mountain River Venison.

It only involved 180kg of venison, but the trial of a venison sandwich last year in 17 restaurants by US chain Arby's lit up social media, with the product being sold out in two hours. Mountain River Venison supplied the venison. The company's Marketing Manager, John Sadler, said people drove for up to two hours to get a taste of the sandwiches and one was even auctioned on eBay.

"All this generated about $10 million worth of unpaid advertising for Arby's," he said. "Arby's is a $3.5 billion business, but the CEO still mentioned this in their annual report."

Sadler also reported progress in China, where Hunter McGregor is working hard to develop a market in Shanghai's top hotels for New Zealand venison. He's spoken to about 90 chefs as part of the P2P market diversification project. "Western chefs find it difficult to get high-quality approved products delivered into China," he noted. With just the Marriot hotel chain having 36 five-star hotels in Shanghai alone, the potential in this segment is considerable.

Mountain River is also launching into the summer BBQ market in Sweden, supplying frozen cuts through foodservice company Menigo Group. Sadler said loins are very expensive for restaurants in Sweden so these usually go to the United States, with Sweden taking shoulder and leg cuts, which are being introduced as a suite of new products, ideal for the grill.

Toni Frost: Year-round the key

First Light Venison General Manager Toni Frost noted how much the venison business had changed since 2004, when 683,000 deer were killed and 43 percent of that production headed for Germany. The total kill was now much smaller and so was Germany's share of it (21 percent).

She said farmer engagement was a key part of First Light's strategy and customers loved having direct contact with those who grew the product during in-store demonstrations. "We want to do more of that."

Toni Frost, First Light Venison.

Through Whole Foods, the company was one of the first to introduce fresh venison at retail level.

In the United Kingdom, where First Light started exporting in 2009/10, there is a strong "buy local" movement. Frost said there is also a strong emphasis on "best in season" and, collaborating with UK farmers. First Light can tick the right boxes for retailers by supplying a premium product year-round, Frost said.

By "starting low" and getting consumers to try the product, they could build on that and get the stores to take a bigger cross section of the carcass, thus delivering better value to farmers.

Like other presenters, she confirmed that brand presence in stores is essential. First Light was involved in the first year of Cervena trials into Benelux and is embarking on a third season supporting that P2P project.

Glenn Tyrrell: Prospects good further out

Glenn Tyrrell, Duncan New Zealand.

The current geopolitical climate – think Brexit, UK and French elections, and possible US protectionism – might be making marketers nervous, but Duncan New Zealand General Manager Marketing Glenn Tyrrell is fairly optimistic about prospects, given venison doesn't have much competition in key markets. Currency movements had also helped in recent months.

Tyrrell said Duncan's experience reflected the wider industry's, with their exports to the United States up 27 percent and to Europe down 33 percent. "Europe is still very important to us. The United States is not as seasonal as Europe and we can sell chilled product there year-round."

He said our product was benefitting from its natural, free-range, grass-fed, hormone-free image.

Given the tight supply situation, Duncan is working with partners who can add the most value – including those who can convert frozen to chilled product through a range of retailers.

Duncan is joining the P2P Cervena in Europe trial this year and is expecting to sell something in the 12–15 tonne range.

Overall, the stars were aligning for the industry. Tyrrell cited improving economies in the United States and Europe, better prices, high-quality product development, the P2P programme including Advance Parties and good relationships with the right customers as putting wind in the sails of Duncan New Zealand's venison business.

"The forecast kill this year of 280,000 will be tough on us, but we're looking forward to sustainable growth further out."

Regulatory challenges but velvet sector stays positive

by Phil Stewart, *Deer Industry News* Editor

There have been some nervous times over the past 12 months as the velvet industry comes to grips with regulatory changes at home and abroad. Despite these bumps, the outlook for the industry presented by Rhys Griffiths, DINZ Market Manager Asia, was strongly positive.

ONE PLEASING INDICATOR was the value of velvet exports. For years these hovered around the $30 million mark, but for the most recent year, these have jumped to $52 million – a significant milestone.

He said the underlying demand for New Zealand nogyong (velvet) in Korea was strong and demand in China was also lifting. It was hard to predict what the next season would do, but the signs were promising.

Rhys Griffiths.

Although there are still 12 or 13 years to go in the Korea–New Zealand FTA phase-in period, Griffiths said the gradual reduction in Korea's 20 percent excise tax on processed velvet over 15 years was already starting to show benefits. By 1 January, the tax will have been reduced by 5.3 percent. In response, the value of dried exports to Korea had already leapt from about $5 million to nearly $9 million by September last year.

Griffiths reviewed three areas of risk that had been confronting the velvet industry: supply, market concentration and regulatory changes.

Supply

Traditionally, the industry became nervous about supply once production went much past 500 tonnes. Those days are well behind us. Griffiths said that despite production going through the 600 tonne mark, the market is not oversupplied.

Part of this was down to the growth in the China market (where more velvet is being retained and consumed) and the Healthy Food segment, led by Korea Ginseng Corporation (KGC). Ten or 20 years ago, Traditional Korean Medicine took 85 percent of our production, but that market share is continuing to decline (see graph on page 5).

Griffiths said other country markets such as the United States (now our fourth-largest market), Taiwan, Japan, southeast Asia and Hong Kong, were starting to grow.

Market concentration – reliance on a few commodity traders

Exchange rate changes and several years of firming prices were expected to result in some price softening in the most recent season. Markets are driven by a mix of fear and greed, and velvet is no exception, Griffiths said. Some seized on concerns about the ability of China to keep importing velvet because of regulatory changes, to help drive down prices. Griffiths said trade to China actually continued at or above previous levels, although prices did soften by 15–20 percent.

Regulatory changes

The Korean Ministry of Food and Drug Safety required all processors to be registered on their website, which proved to be something of a challenge for velvet export companies, Griffiths said. "But trade continued and we managed to navigate our way through it."

The second hurdle was that velvet could only be imported to China as a Traditional Chinese Medicine (TCM) ingredient (and not as a food or agricultural byproduct). This news came in late 2016. (For details of changes see *Deer Industry News*, April/May 2017, page 8.)

Griffiths said this was part of a move to improve food safety in China, and wasn't just about velvet. There would be changes to regulations in New Zealand and in China, with the Ministry for Primary Industries (MPI) creating and enforcing the rules at this end. Importers in China need a pharmaceutical traders' or processors' licence and in many cases will need to do significant upgrading.

The new standards create new opportunities, Griffiths said. "We've been searching for ways to replicate the success we've had

in Korea with Healthy Food. We have made some progress in China but the large companies there still didn't have the confidence to expend significant resource to import New Zealand velvet as a Healthy Food ingredient. The recognition that velvet must be imported to China as a TCM ingredient is a big step forward for us.

MPI officials had been very constructive in helping shape the New Zealand regulations and their Chinese counterparts had also been very fair, he said. They had allowed Chinese importers to keep operating under their existing import licences until the new import permits were available.

Griffiths said it was disappointing that some Korean traders had held off ordering because they were concerned that prices might keep dropping after they had bought velvet. By December they realised that New Zealand velvet trade to China was actually continuing and they started placing orders – sometimes too late.

Promotion

KGC has invested heavily in promoting its velvet-based products, Griffiths reported. The use of famous Korean actor Han Suk-kyu in advertising had even attracted comment in Chinese tabloid papers.

KGC product featuring New Zealand velvet.

He said other companies such as Lotte Mart and LG Household and Health Care were now following suit to promote the New Zealand connection to the ingredients they were using in Healthy Food products. DINZ made a modest contribution to the marketing campaigns with these companies. DINZ assisted PGG Wrightson while Lotte had been filming commercials in New Zealand (one featuring Southland's Peter Allan).

A promising sign

Griffiths recounted a recent visit to a large pharmaceutical company in northern China. "They see the regulatory changes in China as being good for the New Zealand velvet industry. They've just invested $NZ20 million in the launch of a new product. When it's up and running they estimate it could take 10 tonnes of New Zealand dried velvet. There's no deal in place, but comments like that show the potential."

Watch out for...

In conclusion, Griffiths urged producers to:

- become familiar with the upcoming Regulatory Control Scheme for velvet production
- be mindful of overall increasing production levels
- support strong value chains (not commodity based) by supporting those who reinvest in the industry and support the Healthy Food sector.

Regulatory Control Scheme: The new rules

National Velvetting Standards Body (NVSB) member, Paddy Boyd, took delegates through the on-farm impacts of the impending Regulatory Control Scheme (RCS) (see *Deer Industry News* April/May 2017 for full details).

He said the RCS formalises handling and storage processes and this will require some changes on farm. One of the most significant was the standards for freezers, but tidying up around the removal, grading and storage areas was also likely to be needed.

"Velvet is a food product and this scheme brings us more into line with other food industries," Boyd said. "You need a clean, dedicated freezer. It has to be able to maintain -15°C and you need to be able to prove that – a photo of the temperature reading will do that." He added that a freezer can be used for other purposes when not used for velvet storage, but before velvet was to be put in there it first had to be completely cleared out and cleaned with approved products.

Paddy Boyd: Get things ready well in time for the next velvet season.

Other key points were the need to get velvet into the freezer less than two hours after harvest, transporting it in clean receptacles and keeping it frozen during transport.

Boyd said the Velvet Status Declaration, introduced initially as a voluntary measure, would now be compulsory. Farmers would retain a copy with the other accompanying a shipment. NVSB tags were also compulsory under the RCS.

He urged velvet producers to get things in place well in time for the next velvet season. "Don't over-complicate things; use your common sense." One example of common sense was the choice of paint colour. Deer could be spooked by large white-painted surfaces, so a darker colour was fine. The important point was that it can be cleaned and doesn't harbour contaminants.

Some farmers were concerned about keeping birds out of their deer sheds – not an easy task. Boyd said the rules were to be outcome based so total bird exclusion wasn't required in the rules. But it was necessary to prevent any contamination by birds coming into contact with velvet. He said the "clean zone" included all areas that velvet could contact, so that would cover shelves, benches, the crush and surrounding area. Any dirt that was already on velvet would need to be cleaned off. ■

Nick Smith on water quality

by Phil Stewart, *Deer Industry News* Editor

Environment Minister, Hon. Nick Smith was on hand to present the Premier Elworthy Environmental Award and spoke to conference guests on the Government's approach to matters such as water quality.

HE SAID THE deer industry had a challenge making its views in Wellington known because it was a "small voice".

After ticking off the key points of the previous day's Budget announcements, Smith turned to matters environmental, mapping out three main components of the National Government's view.

The first of these was a proper linkage between economic and environmental policy. "Those who pretend you can have a high-quality environment without a strong economy are dreaming. And to those who say you can have either economic growth or high water quality but not both, I say 'bunkum'."

The second principle underlying the government approach was that policy is based on sound science and technical information. "Whether it's about 1080 or water quality or genetic modification, good decisions need to be based on good science."

Smith's third component was the need to change the political culture around good environmental management. He said the extreme positions adopted in the 1990s with terms like "dirty dairying" and "economic terrorists" being flung about were not helpful. Groups like the Land and Water Forum provided a way forward based on mutual respect and practical solutions. He said debate around the Resource Management Act tended to be polarising.

Looking at water quality standards – the source of some strong debate recently – Smith again made a plea for sound science to be used. He defended New Zealand's record on water quality, saying we are in the top 25 percent of countries by the measures used in the clean water package.

Unlike many other countries, Smith said, New Zealand is blessed with large volumes of fresh water – 144 million litres per person, he claimed. By comparison the United Kingdom had only 8 million litres per person and China only 6 million.

New Zealand used only two percent of its freshwater, most of which was used for irrigation. Smith said issues of supply were limited to specific areas and times of the year. Water quality was "complicated" because it involved several metrics, including pathogens, sediments and various nutrients. There were different

challenges in different waterways that affected ecological, aesthetic and recreational values.

He said that since 1991, the RMA had done a great job of reducing point-source pollution (e.g. from meat works or sewage) by about 90 percent. Unfortunately these gains had been overwhelmed by diffuse pollution from runoff into waterways. Sources were as diverse as cat poo, brake linings, sediment and farm nutrient runoff.

New Zealand had to develop its own strategy for meeting this challenge because no-one else had managed this before, he said. The programme to reduce the flow of nutrients in the Taupo catchment was one example of how this could be done.

While the effects on water quality in urban areas were more pronounced than in farming areas (e.g. *E. coli* levels in urban streams are 440/100ml versus 180 in rural streams), the physical size of towns and cities was relatively small, so the biggest gains to freshwater quality could be made by addressing rural areas first. Urban areas still needed to do their bit, Smith added.

He said it was up to regional councils to manage water quality, but they needed direction. The National Water Policy Statement in 2010 helped set up a framework for this. Smith thanked deer farmers for their contribution to a framework of national objectives. Introducing these was challenging for regional councils, he admitted, but more than 20 catchments already had limits in place on stocking rates that would be implemented with the help of tools like OVERSEER.

Smith said swimmability of waterways was a central plank of the clean water package released recently. There had been some debate about the levels that had been set for *E. coli*, but we now had a clear map showing where those limits were being met or exceeded. At present, 72 percent of our waterways were in the "fair, good or excellent" categories. The target by 2040 was 90 percent.

Smith said the "excellent" category chosen for New Zealand was identical to that used in Europe, while our "fair" category was slightly tougher.

He said fencing stock from waterways would be the biggest challenge for deer farmers. "I am developing regulations with graduated requirements for waterways across New Zealand to have stock excluded." He commended the work of the Land and Water Forum with input from the deer industry, helping ensure the measures were practical. The changes were toughest on dairy, less so on beef and deer in hillier terrain. Stock exclusion would be regulated nationally because "you don't want that fight 16 times". Smith said a technical advisory group would help regional councils implement the regulations.

Exemptions would be made for some of the "tiger country" where deer are farmed and fencing waterways is impractical. He said fencing waterways was one of the least expensive and most important things that can be done for water quality. The deadline for full implementation is 2030.

Riparian planting was also valuable, but it was difficult to regulate nationally because the environment varied so much around the country.

He said it was perfectly feasible to improve water quality with well-designed water storage and good management practices while growing industries like deer farming. A proposed water storage plan for the Waimea Plains in Nelson was a good example of how this could work.

During a Q&A session, Smith acknowledged that it is difficult to find a single water quality test that will suit all situations, because the quality issues (nitrogen, pathogens, sediment, etc.) vary so much.

Environment Awards announced

Steve Borland (left) receives the Premier Award from Environment Minister, Nick Smith.

The results of the 2017 Deer Farmers Environmental Awards were announced at the Deer Industry Conference. There were five entrants this year, with each picking up a category award and the judges commenting that the standards shown on these properties were outstanding. In-depth articles on each of the winners will be published in Deer Industry News over the coming year. The awards, and brief judges' comments, are as follows.

Premier Award – The Elworthy Environmental Award

Steve & Chris Borland and Bob Sharp:
Sponsored by Deer Industry New Zealand

Deer Industry New Zealand

The vision of a sustainable farming system ensuring long-term protection of the environment and sustainable production. Best farming practice is critically evident.

NZ Landcare Trust Award

NZ LANDCARE TRUST

Steve & Chris Borland and Bob Sharp

For excellence in sustainable deer farming through action on the ground.

The recipients demonstrated strong leadership through identification of risk areas, implementation of mitigation tools and adoption of farming systems to ensure long-term sustainability.

- Inspirational and motivated business recognising risk areas and implementing mitigations for continual improvement.
- Complete understanding of animal requirements and how they fit the farm environment.
- Phenomenal thinking, planning and development over three years starting from scratch, showing passion and drive.
- Recognition of business opportunities and development of property to allow family succession.
- Excellent protection of native areas while allowing for future business opportunities.

NZDFA Next Generation Award

Hamish and Julia Mackenzie

For outstanding performance across environmental, financial and social aspects of the business.

The recipients demonstrated outstanding performance across environmental, financial and social aspects of their business. Their passion for farming deer and doing it well showcases the opportunities within the New Zealand deer industry.

- Excellent partnership of Hamish and Julia working to their strengths and complementary skills that fit the farm business.
- Julia's proactive leadership encouraging involvement and input into local plan and courage to take speaking opportunities.
- Scale and understanding of farm limitations and opportunities in a unique and challenging environment.
- Retention of natural values and character across the farm without compromising production.

First Light Award

Claire Parkes and Simon Vincent

For total commitment to farming sustainably with a strong customer focus.

The recipients demonstrated a passion for the land and strong environmental stewardship. They work towards ensuring the land is left for the next generation in a better state than when they started. It is clear from their business decisions that they have the end customer in mind.

- Proactive relationship with processor and promotion of the story behind the production of a high-quality product.
- Carefully staged development of the property, maximising opportunities and strengths of the farm environment.
- Excellent programme of planting for shade and shelter to fit animals, land and people.
- Excellent examples of stream protection, riparian planting and use of sediment traps.

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Farming sustainably

by Phil Stewart, *Deer Industry News* Editor

Two guest speakers gave contrasting presentations on the changes needed for farming to continue in a sustainable way, both environmentally and in terms of the industry's "social licence" to operate.

CORINA JORDAN, a freshwater ecologist and geneticist, is Beef + Lamb NZ's North Island Policy Manager. She said critical source areas (CSAs) for losses of nutrients, sediment and pathogens are easier to manage than diffuse losses through the soil profile. However, about 80 percent of losses came from 20 percent of the farm, so it made sense to concentrate on CSAs, she said.

Land and Environment Plans (LEPs) or Farm Environment Plans (FEPs) provided a good structured framework for environmental management that could be built into a farm business plan, she said. To do this effectively required an understanding of the farm's land types and soils, along with their capabilities and limitations. She said environment plans provide a verifiable record with measurable actions.

Jordan said the increasing pressures on drystock farms including deer posed a risk to the industry's ability to farm. Risks like these needed to be turned into opportunities but it would take leadership and adaptability, she said.

John Rodwell of Lindis Crossing Station and Kintore Farm Ltd has a diverse primary industry background and is now involved in both dairying and deer. He said farmers' views had been traditionally farm-centric, with practices around fertiliser, stocking, welfare and so on done largely to "suit ourselves".

However the industry was now being challenged and the "social licence to operate" was becoming real. Farming was increasingly being seen as a reckless user of resources, especially water. Grazing practices, fertiliser application, chemical use, farm safety and animal welfare were all areas where farming was being judged.

Rodwell said the world is asking farming to change its practices to suit them. For example, they wanted authentic, traceable food of guaranteed quality, with care for the environment, biodiversity and animal welfare.

Rodwell belongs to a group of "thoughtful" farm and agribusiness leaders who are thinking "outside the farm gate" with initiatives to shift farming's mindset to take more heed of what customers and New Zealand society want.

The group, "Waka Aotearoa", involves 350 farms but also others including the CEO of the Ministry for the Environment and the deer industry's Andy Macfarlane. Waka Aotearoa is connected to Te Hono, a "business-led, government-partnered" group that is "focused on the aspiration for New Zealand, to be recognised by the rest of the world for our natural environment and products, for the openness and ethical values of our people, and the quality of our relations with the rest of the world".

The Waka Aotearoa group wanted to "change the conversation" to help create farmer-led change. "We need to think about what we need to do inside the farm gate to ensure our continued social licence to operate," Rodwell said.

- John Rodwell's contribution was supported by **First Light.** ■

Nick Smith: continued

Gallagher Technology and Innovation Award

David and Hilary Ward

For excellent utilisation of farming technologies to improve on farm productivity and manage resources.

The recipients have utilised farming technologies and knowledge to progress their business, improve on farm productivity and manage resources.

- Excellent integration of whole-farm system through excellent knowledge, good planning and attention to detail.
- Continual enhancement of soil capacity through strategic use of high-producing crops and finishing of livestock to fit farm system.
- Involvement in Advance Party is resulting in strengthening relationships with suppliers as well as sharing of knowledge.
- Strong community involvement and input into development of local plan through sharing of data and understanding of water use and aquifers.

Duncan & Company Award

Lyndon and Millie Matthews and family

For vision and innovation while mastering a demanding environment.

The recipients demonstrate forward thinking and adopt sustainable farming practices while having to operate their business within a demanding environment.

- Perseverance in coping with challenging droughts and earthquakes and looking ahead to opportunities developing with irrigation.
- Recognition of environmental values and the opportunities provided for the next generation to have a positive impact on the property.
- Excellent pasture management and use of high-producing species to fit soils, climate and feed demand.
- Clear view of farm succession taking into account family interests. ■

Future coming fast

by Phil Stewart, *Deer Industry News* Editor

Two invited speakers from outside our niche sector showed that you don't need to have been immersed in deer for a long time to bring some valuable insights to the industry.

BRUCE COTTERILL, PROFESSIONAL director and business communicator, reminded his audience that business success is not really rocket science. One of his strongest messages about business success was the importance of "clarity of purpose". This was exemplified well by Norman Schwarzkopf, the coalition military leader in the first Gulf War. His purpose was "kick Iraq out of Kuwait", a pretty clear objective.

Cotterill said it could be surprising, when you dug below the surface of an organisation, how little some key people shared a common vision.

Consistency and good communication were other important attributes for a business, he said. And this didn't just apply to big companies or high finance: Cotterill gave the example of a painter who followed up a job with calls to make sure the customer was happy – something that didn't cost anything and took little time, but generated huge goodwill.

"Creative entrepreneur" **Kaila Colbin**, a US-born Kiwi, is co-founder and chair of Singularity University, just one of many enterprises she's involved with.

She spoke to the conference about the speed of change and our ability to make accurate predictions. The human brain, she said, sees change in a linear way. However disruptive changes, such as the introduction of solar energy or self-drive cars, are happening exponentially fast.

It wasn't all about faster computers or smarter cars, however. Colbin said primary production was also subject to rapid, disruptive change. Her first example was automation, which is starting to make big headway, especially in horticulture and arable cropping. "If Trump shuts down immigration from Mexico, farmers will switch to robots," she predicted.

Another change coming out of left field has been the drop in costs for LED lighting, which has changed the economics of indoor, soilless horticulture. "Vertical wall" farms have been another development that take up much less space and can be 350 times more productive than the usual horizontal setup.

Perhaps closer to home for deer farmers was the prospect of bioengineered food products. Since 2014, the cost of production for bioengineered meat derived from stem cells has plunged from $2.293 million/kg to $39,683/kg, to $80/kg – getting within the reach of high-end restaurants. Products such as milk or eggs created using genetically modified yeasts would never appeal to vegans or hippies, let alone the discerning consumers of New Zealand venison, but could find an important niche with industrial-level catering, Colbin said.

"We can't assume that the rest of the world will react to the yuk factor with bioengineered foods.

"You can either go with [these trends] or go hard out the other way to all-natural production."

Colbin said New Zealand has a great advantage when it comes to marketing products based on their natural provenance. She said the primary sector needs to recognise the changes that are coming and make a collective decision about the challenges.

"You have some time on your side but you need to start planning now."

- Bruce Cotterill's contribution was supported by **FMG.**
- Kaila Colbin's contribution was supported by **Rabobank.**

Bruce Cotterill: Clarity of purpose is essential.

Kaila Colbin: Our brains aren't wired to cope with exponential change.

Let's get technical

by Phil Stewart, *Deer Industry News* Editor

In a departure from previous years, day two of the conference was a Saturday morning-only session, with the first segment, sponsored by Alliance Group, devoted to technical updates. These included reports from the Advance Party Conference held in the capital two days earlier.

Advance Party reports

Mackenzie group using farm data

Pania Flint, who coordinates the 25 (and rising) Advance Parties, is also a facilitator, looking after groups in her Central Regions patch, as well as the Mackenzie Advance Party.

Reporting on the latter group, she said the Mackenzie farmers were focusing on "realising potential" in what could be a challenging environment. Flint is a great proponent of using farm data and members of this group have been reaping the rewards.

For example, deer are part of an integrated system at Hamish and Julia Mackenzie's Braemar Station at Lake Tekapo. Flint said the Mackenzies had re-evaluated the contribution of the deer to the business and concluded they needed more input, with the result that the deer are now pulling their weight along with the sheep and cattle.

The Mackenzie group has a range of production systems, but all have been focusing on specific areas like genetics, feeding, weaning, weighing, feeding R2 hinds and body condition scoring (BCS). Flint said the group devoted a whole day to BCS and are now all competent to score their animals.

She said getting members of the group to consistently record has been part of the group's success, but it needs to be farmer centred. She said it has helped them see what the deer contribute to their business. "Farmers are hungry for knowledge and they want to look deeper into their own performance."

Flint is doing a Kellogg Rural Leadership course and is focusing her project on performance recording. She said having the right tools and the right attitudes are the secret to effective use of farm data.

The group is now four years old and looking ahead for new challenges. They are not short of ideas – one has been in-depth cost benefit studies on different strategies. One such project has been at Clayton Station, where the Orbells have been looking into improving feed quality on their hill block (see *Deer Industry News*, April/May 2017, page 19).

Leptospirosis vaccine cost-benefit trial

Jim Cameron is a member of the Southland Elk/Wapiti Advance Party. He told the conference about a small on-farm leptospirosis vaccination trial at Connemara, near Manapouri, a farm he manages for Murray Hagen. Connemara is a 330 hectare breeding, finishing and velvet wapiti stud with 870 cows (including 100 R2s), 360 bulls (including sires) and 1,000 weaners (including bought-in animals).

Cameron said they get good growth rates but reproductive performance wasn't good in the first and second calvers, even after years of taking out the wet/dries. They'd been doing everything right, getting one condition score on the cows in the lead-up to mating and giving them an autumn drench.

"Getting them pregnant wasn't a problem – but the calves just weren't there at weaning. The percentages were still in the mid-to-low 80s."

Leptospirosis was highlighted as a possible cause of the poor performance. Other members of the Advance Party had got good results from vaccinating against the disease and Massey studies had shown benefits in terms of reproductive performance and weight gains.

The project at Connemara involved vaccinating half of a mob of 170 R2 and R3 cows against leptospirosis, with all managed in the same conditions. The results were quite compelling in both reproductive and weight terms (Table 1).

Table 1: Results of leptospirosis vaccination trial in R2 and R3 cows

	Weaning percentage	Weaning weights of offspring
Vaccinated group	93%	76kg
Unvaccinated group	87%	72kg

Cameron said the 6 percent increase in weaning percentage and 4kg weaning weight advantage yielded a net (of labour and vaccine costs) benefit of $3,670 per 85 cows (about $43 a head). "There was virtually no tail end with the vaccinated ones," he said.

He said an added and uncosted benefit was the better protection for human health, when the livestock are immunised against the disease and don't shed the disease organism nearly as much as when unvaccinated. Another benefit was the reduced amount of culling needed.

Hill country cropping at Te Mara Farms

Hamish Clarke, from the Waipa Advance Party, described an aerial cropping and regrassing project in hill country. He'd seen the technique work in the lower North Island and wanted to give it a go, despite the risks of it not working.

Clarke said he wanted to make a gorse-infested 6-hectare hill block that was "useless" in winter more productive while controlling weeds and unpalatable native species.

The programme started in July/August with an (unsuccessful) attempt to get mixed age hinds to clean up the thatch left behind by heifers. The first spray, to kill unpalatable pasture species with 6 litres/ha of glyphosate was in mid-October. A second spray at 3 litres/ha in early November targeted the weed seed bank.

Chicory established following helicopter seeding.

Pasja crop applied by helicopter.

Summer crop seeding followed straight after, with one paddock sown in chicory (22kg/ha) and another in Hunter Pasja (12kg/ha), with DAP, SerpS and boron applied at the same time, along with slug bait.

Yearling hinds were set stocked on the Pasja 3–4 weeks after planting and taken off in April. Spikers got three grazings off the chicory, with two further grazings given to mixed age hinds.

The chicory was sprayed in March for broadleaf weed control and the Pasja sprayed out completely. This was followed by Italian ryegrass at 35kg/ha.

Clarke said he learnt plenty from the exercise, including the importance of getting the wind conditions right when dropping seed (some had ended up in the wrong paddock after the wind got up). He said coated or heavier seeds would help with more accurate placement. Another issue was the presence of a thick residual thatch, which lowers germination rates, although it probably does protect the soil.

He said slug bait was a worthwhile investment and cheaper than reseeding. Rain coming at the right time helped with germination when seeding uncultivated soils, he added. Multiple germinations were observed during the exercise, so some patience was needed.

Clarke was sufficiently encouraged by the experience to continue using the technique, planning a two-year cycle with four sprays between old and new pasture, as follows:

1. Spray out weeds and unwanted pasture species
2. Pure Pasja in first spring for yearling hinds.
3. Pure sward of annual grass in autumn for weaners.
4. Pure chicory for spikers in second spring.
5. Add Italian ryegrass to chicory in second autumn (possibly to last into a third or fourth year).
6. Create permanent pasture the following spring.

He said the chicory application cost was $1,342/ha and the Pasja was $1,080. A saving of $200/ha was possible by running crops back to back.

"The hard part has been getting it out of crop and into winter grass," Clarke said. "We left it a bit late this year."

He was conscious that "spray and pray" had been getting some bad press, but was confident the system could be managed well. "We don't use cattle on it and we don't break feed."

Well managed, the technique had potential to make the deer industry more productive, he said. Clarke thanked the Waipa Advance Party and the late Brian Wellington for their help and advice.

Regional workshops strike a chord

Grant Charteris, a member of the "Hawke's Bay Originals" Advance Party, updated the conference on P2P Regional Workshops. The first of these was held in Hawke's Bay last August and several more have been held since (see separate reports in this issue).

Charteris said the workshops focused on specific topics. "It's always good to read about these subjects but it's powerful to see it in person at your neighbour's place." The Hawke's Bay workshop looked at winter crops at two farms, Jedburgh and Maranoa, focusing on crop yields and pros and cons of break feeding versus ad lib.

Charteris said having experts on hand such as PGG Wrightson's Hamish Best, as well as Jason Archer and Geoff Asher was a real bonus.

"The workshops are a great way to stimulate farmer-to-farmer discussion and to share lessons with the wider community."

Deer health reviews taking shape

Lorna Humm, DINZ Deer Health Project Manager, explained Deer Health Reviews, a process for identifying production gaps that could be caused by health issues, assessing health risks at farm level and making a plan to manage these health barriers to higher profitability and continuous improvement.

She has developed a workbook that farmers can go through with their veterinarian so they can develop a plan that targets

animal health spending in the right places. The document is to be available in hard copy but will be most valuable in its electronic format, linking to other P2P productivity tools such as the KPI charts and growth curves for replacement hinds and venison production.

Humm said the review process had been trialled on several farms and has been refined as a result. Farmers liked going through the review because it identified risks unique to their property and farm system, providing a range of options for managing these. Some commented that the reviews were useful for staff training and had been a real "eye opener" for the health status of their own herds. Others have commented that having a physical record of the decisions made is better than just having a calendar.

Regular measuring and monitoring was essential to get the most value from the process, Humm said.

It was also a great way for veterinarians to get a better appreciation of how their clients' businesses worked, while providing farmers better value for the money they spent on animal health advice. "This kind of health planning is about ensuring the bases are covered for health conditions that can, and do, limit productivity. It's about what you *don't* need to do as much as what you do," Humm said.

Phil Skinner, veterinarian for Orari Station, managed by Lindsay Paton, said the reviews gave an opportunity to assess the risks of action versus non-action around a particular issue and also what improvements could be made through additional management changes.

He said it was worthwhile taking a couple of hours for vet and farmer to work through the document and arrive at a plan together.

Humm said the Deer Health Review Workbook should be available from the end of June and is confident that "good stories of both improvements and cost-savings" will continue to come out as more farmers and their vets go through the process. She is exploring opportunities to extend the capability of the electronic form to be able to link with other farm management systems like FarmIQ, but "this process will be available for all deer farmers, in the way that suits them best, no matter where they sit on the scale of size or technology".

Lorna Humm.

DeerPRO update

Solis Norton introduced Ken Blair, the new Chair of Johne's Management Limited (JML). Blair has replaced Geoff Neilson, who had chaired the organisation since its inception in 2007.

Norton said JML had a complete focus on Johne's disease (JD) and at present, 300 farmers are being helped with JD control.

While JML – now known as DeerPRO – is "keeping its foot on the throat of JD", the system and networks can be used to provide additional value to farms. Norton said these uses would be quantified over the next 12–18 months.

He said DeerPRO wanted to increase its coverage of deer farmers and deer. The system was able to generate useful productivity information for farmers that they could use in conjunction with the Deer Health Reviews being developed.

"For farmers that don't do a lot of weighing, this is a simple way of getting some of that information quickly to hand."

Norton said DeerPRO had undertaken to operate at less than the cost of JML.

The routine work on JD monitoring would continue, but DeerPRO would also work with the P2P programme, offering 500 farmers "a taste" of some of the productivity information that is available. DeerPRO is also working with the P2P advisory group at other options for that could be supported with their data.

"It's about keeping in step with you and providing a service you can use. We've had good feedback from branch chairs but I accept haven't done the best job at communicating with the DFA over the past year or two."

Norton said too much data could be overwhelming and he undertook to restrict what he sends out to farmers to important, concise information.

Research update

Deer parentage testing

AgResearch's **Suzanne Rowe** talked about progress on deer parentage testing, an important tool for those keen on accelerating genetic progress in their herds.

Echoing the points made by Keynote speaker Kaila Colbin, Rowe said genetic sequencing the human genome cost $US300 million in 2000, but in 2017 it could be done for about $1,000. Genotyping by sequencing (GBS) technology was now available and feasible for livestock producers and could do far more than earlier technologies.

She said the most inaccurate way to assess genetic merit is by eye. Having estimated breeding values for one, or preferably two, parents is a better way to choose the best animals, but the most accurate (albeit more costly) prediction can be done using genomics. Industry-wide phenotyping – seeing how the genes are expressed in a farming situation – is essential at the outset of building a genomics system to validate the genomic predictions, she said.

Turnarounds by Genomnz of parentage results from submitted tissue samples can seem slow. Rowe said the processing time can't be less than 3 weeks, but is often 5 weeks and sometimes up to 8 weeks when system upgrades and training are needed. The lab deals with about 150,000 samples a year, many of which arrive with no paperwork – "our worst nightmare".

With 75,000 genetic markers available, GBS offers very accurate parentage information with fewer mismatches than before, and with very precise breed composition also available. Rowe said breed composition results were based on existing standards. "If the results we give you don't seem right, give us a call – we want to get this right."

Changing the GBS technology meant that parents had to be re-genotyped, but it was worth getting done. "Get your parents [samples] in before your progeny. It speeds things up immensely."

Rowe said that with the numbers of samples being processed it was providing excellent genomic information that would help

identify genetic differences linked to large effects. "There have to be a few 'big hitter' genes circulating in there that we can go after to make our predictions more accurate."

Suzanne Rowe.

She concluded with an interesting comment on the use of new gene editing technologies. "There's a lot of talk about non-GMO being important, but gene editing – transferring genes for a trait like disease resistance from one breed to another – is being widely used now. It's being used for welfare reasons [in some cases]. I'm not advocating GMOs, but when you advertise your products as GMO free, be aware that it's a tool you may want to use in the future. Don't shoot yourselves in the foot."

Herd improvement

DINZ Deer Select Manager, **Sharon McIntyre** reminded producers that a wrong decision about genetics would hang around in a herd for 10 years, so it was important to get it right.

She said the beauty of estimated breeding values (eBVs) is that they are real, having real and measurable impacts on farm. Weight eBVs would provide venison producers with the most bang for their buck, with some sires now having values of +30kg or more for weight at 12 months. She said a 10kg advantage at weaning would give a benefit of about $55, and this edge over the progeny of lesser sires is maintained right through to finishing.

Breeders had done well on weight gain eBVs but others such as conception date were also important, McIntyre said. Sires are now available with a 9-day advantage on conception date. She said a conception date 7 days earlier than average would result in a birth date 5 days earlier, still a useful margin.

She warned that selection on traits such as these shouldn't be at the expense of reproduction and this was being monitored.

Quality eBVs were also starting to make an impact, she said. Six-to-eight years of eye muscle area (EMA) scanning data was now available and there was a pleasing upward trend in this trait. The deer progeny test had shown a strong correlation between eating quality and EMA, a relationship that doesn't exist in some other animal species.

Sharon McIntyre.

The deer industry could possibly learn from the sheep industry, which was producing more meat from each breeding ewe. If this could be done with deer, it could help close the supply gap currently constraining the industry.

In conclusion, McIntyre explained that under the P2P programme, a tool was being developed to help farmers design a mating programme to match the right kinds of sires to their hinds. Information such as numbers of replacements needed, average weaning percentages, and policy on retaining dry first and second calvers will be fed into an app being developed by Abacus Bio, currently still in spreadsheet form.

Bloody parasites

Jamie Ward, AgResearch, outlined three parasitology research programmes under way: Tomorrow's deer, mini-bolus development and a drench resistance assay.

Under "Tomorrow's deer" the researchers are testing progeny of sires selected on the basis of the CARLA trait – something that may give some genetically based resistance to gut parasites. It's known the trait is heritable, but not how usefully it manifests itself in deer. Four sires are being used, two with high CARLA values and two with low values, one each being red or wapiti.

Ward said the overall aim is to favour immune-competent, "well" deer that will need fewer chemical interventions.

"If that CARLA response is related to a productivity response, we'll be able to start developing some official CARLA breeding values for Deer Select. Some breeders have started using the values unofficially."

The next programme is the development of a mini-bolus to deliver a lower dose over a period of four days using a combination drench. This work builds on that reported by Dave Leathwick (see *Deer Industry News* December 2016, page 41).

The bolus being developed is about 50mm long and the same diameter as an 8g copper bullet. Ward said AgResearch engineers are looking at a "bottom up" design for a deer-specific gun to deliver the bolus as well as the copper bullets.

The first efficacy trials are about to start, while AgResearch is talking to potential commercial partners to move this forward. Ward said it will be efficacy tested on more farms next year, including farms with a liver fluke challenge (no registered products with a label claim for liver fluke in deer are available in New Zealand).

The third area of work is to develop a laboratory assay for drench-resistant parasites. It hadn't been easy to find parasites in deer that were confirmed as resistant when tested in the lab, so this work would take a little while, Ward said. They would be infecting both cattle and deer with *Ostertagia*-type parasites known to be resistant in cattle and possibly resistant in deer, to try to differentiate them.

Looking ahead, Ward said a post-doctorate project was being set up to look at the fundamentals of parasite biology in deer, both lungworm and gastrointestinal. Not much was known about how parasites behave in deer because for decades the deer industry had relied on drench as its primary management tool. "We'll be learning about the problem rather than finding another sledgehammer to attack it." This work would look at questions such as how parasites metabolise drench in deer and how they

The wretched life of a deer parasitology researcher.

survive in pasture over winter.

DINZ Science and Policy Manager, Catharine Sayer, added that farmers prefer a triple-combination liquid oral drench that will give 95%+ kills, knock over resistant parasites and have a short withholding period.

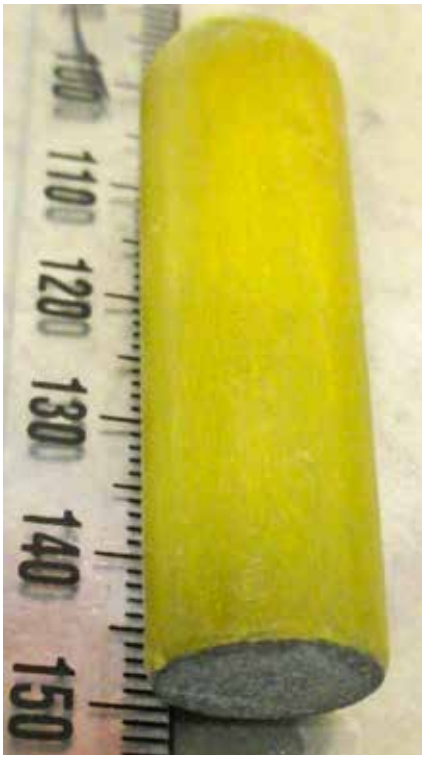
She said DINZ has committed to investing in the development of such a drench and was in discussions with a potential commercial partner. A small pilot trial was due to start soon.

Swedes don't appear harmful, but …

Does wintering pregnant hinds on swedes cause fetal losses? And do they suffer from a low-protein diet when they are on the crop? These questions had been raised after some Southland deer farms suffered abortion losses and found over-wintering on swedes as the only common factor.

Geoff Asher, AgResearch Invermay reported on a study to answer these questions, with mixed age and R2 hind mobs run on either swedes or pasture/silage. He said there was no significant difference in the R2 abortion rates between the swede and pasture/silage mobs.

While the glucosinolate levels in the swede crops were at potentially toxic levels, it didn't seem to bother the hinds, which showed no liver damage. And apart from one paddock of swedes where levels were marginal, all of the swede crops were providing hinds with satisfactory levels of crude protein. The swedes had no net impact on liveweights.



A mini-bolus for deer will look something like this.

These results seemed to allay any worries about over-wintering hinds on swedes, but Asher warned that conditions varied year to year. He said swedes could produce higher levels of glucosinolates when stressed or when bolting in late spring. Hinds can put on acceptable liveweight gains on swedes as long as adequate protein is available, but he noted that protein levels can vary enormously. Transitioning hinds from pasture to swedes needs to be done over 2–3 weeks, he added.

"Be aware of the risk factors," he concluded.

Invermay waterways

Geoff Asher also reported on AgResearch Invermay's work to clean up its waterways. This had originally been set up as a Focus Farm project, but Invermay would now conduct environmental work as an Advance Party member.

Asher said some money was available to monitor stream water quality under different mitigation strategies to test the effects. Four waterways that all drain a northwest-facing slope under deer will be monitored over five years for sediments, nitrates, phosphates and *E. coli*.

This is planned to be part of a Hitting Targets programme monitoring water quality in high country streams on at least five separate deer farming sites throughout New Zealand, Asher said. These will be in the central North Island, eastern South Island, central Otago and Southland. The mitigation work will begin next year.

"We want this work to underpin realistic, practical and cost effective rules about mitigation measures for water quality. Fencing off all waterways on hill and high country is *not* practical."

Geoff Asher.

Velvet research update

Catharine Sayer finished the technical session with a summary of what's happening in VARNZ's velvet research programme.

Current work includes continuing to find a commercial partner to launch RepaiRx in in a key market; an isotopic signature test pilot to confirm origins of velvet that's in the marketplace; and stem-cell mediated healing, looking at the healing that continues post velvetting.

Planned research includes welfare-related work looking into needs for post-velvetting analgesia, and work looking at the role of velvet in healthy brain ageing. The latter project has seed funding provided by the former Warnham & Woburn Society. ■

Awards night

There were multiple winners in this year's major industry awards at the Wharewaka function centre in Wellington, reports *Deer Industry News* Editor, Phil Stewart.

Double happy for Matuschka award

THE MATUSCHKA AWARD, now in its 22nd year is for "a farmer or farming entity who or which has made a significant ongoing or lifetime of contribution to deer farming and the NZDFA in particular at Branch level. The award recognises the grass roots farmer and unsung contributor to local area activities, functions and core spirit of deer farming".

Delighted dual Matuschka Award winners (from left), Murray and Jan Coutts, and Chrissy and Craig Hocken.

This year the judges, Murray Matuschka and Bob Swann (who has just celebrated 60 years of marriage to Frances) couldn't separate two outstanding sets of nominees. For 2017 there are joint winners: **Craig and Chrissy Hocken** (Central Regions) and **Murray and Jan Coutts** (South Canterbury/North Otago).

Both couples received exceptional and overwhelming testimonials for their significant and ongoing contribution to their local area and the core spirit of deer farming.

Deer Industry Award

In a step away from tradition, the Deer Industry Award was presented to three overseas individuals who had shown incredible passion, enthusiasm and commitment to see the US venison market grow over the past decades:

- Mark Mitchell – President and Founder of Broadleaf Game.
- Dale Beier – founder and owner of Dales Exotic Game Meats in Denver Colorado.
- Rich Flocchini – Vice President and founder of Sierra Meats Venison and Game department.

Mark Mitchell, who was a guest speaker at the 2016 Deer Industry Conference, has been involved in the deer industry for more than 35 years. He started capturing deer in the late 1970s, formed a local market company in the early 1980s and founded Broadleaf USA in the late 1980s.

Dale Beier still operates his Denver-based business, remains a significant regional distributor, and has been a product developer and innovator of New Zealand farmed venison now for the industry's entire 35 year history. He was the first to produce and describe the Denver leg cuts for New Zealand venison in the early 1980s.

Rich Flocchini started importing New Zealand farmed venison in the early 1980s, and was one of the first importers to bring venison into California, establishing a special venison and game division within his company to pioneer processing and distribution of New Zealand venison in the United States.

Former DINZ CEO Mark O'Connor stood on the judging panel for the late John Spiers, representing sponsor Porter Holdings. Dave Lawrence and Don Bennett were the other judges and co-sponsors are NZX Agri and NZDFA.

O'Connor said the joint nomination of the three men was the only one received this year, but the panel nonetheless applied rigorous scrutiny to ensure they indeed stood up to comparison with previous recipients – and indeed they did. He urged the industry to think hard about who would be a worthy recipient in 2018, noting that only four of the 34 recipients of the award over the years have been women and few have been under 40. ■

NZDFA Annual General Meeting

The 42nd AGM of the New Zealand Deer Farmers' Association was the last item on the conference programme in Wellington on 27 May and was a low-key affair. The full minutes will be published in due course, but here are the key points.

Remembrance

The meeting acknowledged the passing of the following members and industry figures with a minute's silence:

- John Spiers
- Brian Wellington (see page 23)
- Rodney Dixon
- Stuart Rosie
- Barry Moss
- Bev George
- Gavin Rodgers
- Jack Gaukrodger

Annual report

Executive Committee Chair, David Morgan, went through the highlights of his report. This can be read in full in the 2016/17 annual report of NZDFA is available online at http://deernz.org/publications.

In seconding the Chair's report, **David Stevens** noted:

- The industry is in a great position. While some of this can be attributed to supply, the processing companies working together is a vital part. They are the envy of other sectors.
- The next 12 months will require discipline from all.
- The building of the relationship between the NZDFA and DINZ Board has been greatly beneficial.
- The P2P programme and Advance Parties have been an exceptional success. The Next Generation programme is also a great initiative but the real challenge will be to keep the more experienced people engaged with the NZDFA.
- DEEResearch session at the annual Branch Chairman's Meeting provides a beneficial link with science, especially with this engagement missing in the past.
- There is a huge challenge ahead with regards to the environment and the Executive Committee is commended for engaging with DINZ to employ Lindsay Fung, a great advocate for the industry.
- There will always be challenges for the industry and the NZDFA but these will be overcome; the Executive Committee is to be congratulated for a job well done over the previous year.

Finances

For details, see the NZDFA annual report; highlights included:

- A good after tax surplus of $39,451.
- A break-even budget for 2017/18, including $10,000 for leadership development.
- The decline in membership seems to have bottomed out and some former members are now rejoining – a good sign.

Honoraria

Honoraria for the Executive Committee members and Chair have been set at $6,000 and $9,000 respectively for nine years. The meeting felt this level was now inadequate given the time involved. A motion was passed increasing the honorarium for Executive Committee members by $2,000 to $8,000 each, and for the Chair by $3,000 to $12,000. This will increase costs for 2017/18 by $9,000 and the budget will need to be adjusted accordingly.

Remits

There was only one branch remit, from Canterbury West Coast:

"That the NZDFA requests that the DINZ Environment Policy Manager and Chief Executive Officer enter into an investigation and negotiation with Environment Canterbury (and any other Regional Council following similar policies) concerning a very high charging structure for inspecting and approving Farm Environmental Plans where such costs and ongoing costs are not pro rata shared according to size, scale and stock units, rather the same cost regardless of size and scale of the property."

The motion was **carried**.

Elections

Membership of the Selection and Appointments Panel was confirmed (no election was required). Elected members are **Paddy Boyd** (Chair), **Brian Russell, Donald Whyte** and **Leith Chick**.

Justin Stevens (Marlborough) was elected unopposed to the Executive Committee as the South Island member, replacing Kris Orange, who has finished his term. Justin joins **David Morgan** (Chair), **John Somerville** and **Grant Charteris** on the Executive Committee.

Acknowledgements

Executive Committee Chair, David Morgan, paid tribute to **Kris Orange** for his six years' service on the committee, four of these as Chair, presenting Kris with a stag miniature as a token of this esteem. John Somerville endorsed these comments, adding that Kris was defined by his passion for the association and the success of the Next Generation programme. The role had demanded considerable sacrifice, not only as a farmer but also as a transport business owner with a young family.

Kris thanked his fellow committee members and also the Branch Chairs for their support, and said he was pleased to see the NZDFA's fortunes appeared to be turning around. ■

NZDFA Executive Committee members from left: Grant Charteris, David Morgan (Chair), Kris Orange (outgoing South Island member), Justin Stevens (incoming South Island member) and John Somerville.

Obituary:
Brian Leslie Wellington, 1956–2017

Brian Wellington, who exemplified the spirit of the deer industry's quiet achiever, passed away on 14 April aged 61.

NEVER ONE TO sing his own praises, the achievements of Brian and wife Jacqui were nonetheless recognised last year when they received the Matuschka Award in recognition of their contribution as being among the industry's unsung heroes.

Brian was a third-generation Te Awamutu farmer. His grandfather bought the original 200 hectare block in 1920, to which his father added 136 hectares in the 1970s. Brian and Jacqui added a further 285 hectares in 2000. Their son Andrew and partner Holly have recently returned to the farm to continue the tradition, while their other children, Susan, Christine and Robert, have all been regular visitors to help out with velvetting, stock work and anything else that needs doing.

Starting with deer in the late 1970s, the Wellingtons built on the work of Brian's forbears to develop an impressive operation that today is 70 percent deer – more than 7,000 stock units – producing both velvet and venison.

Te Awamutu Station, in the Owairaka Valley southeast of Te Awamutu, went from strength to strength under Brian and Jacqui's stewardship, not only as a highly productive enterprise, but also one with strong environmental credentials. A string of awards in recent years gives some insight into what they achieved. These included a merit award in the 2003 Ballance environment awards, and in 2102 a Beef + Lamb NZ Livestock Farm Award and Massey University Discovery Award, and becoming a finalist in the Silver Fern Farms Plate to Pasture Award.

The care that the Wellingtons were taking with their farming environment was also recognised in 2012 – something of a watershed year for the couple – when they received the Premier Elworthy Environmental Award, recognising their leadership in environmental sustainability and excellence in land management.

Speaking at Brian's funeral, long-time friend and veterinarian Mike Woods, talked of a "bloody good man", who was totally unpretentious and had great humility, but who was nonetheless tickled pink to have been recognised by his peers over the years, culminating in the Matuschka Award in 2016.

Brian's quietness belied a huge array of skills. Mike said Brian was keen to learn, pragmatic and took a long-term view. A capacity for hard work, frugality, great stockmanship, resourcefulness, efficiency, keenness to innovate and an enthusiasm for record keeping all contributed to the ongoing success of the farm, Mike said. His use of self-feed silage pits and wintering hinds in the pine block was just example of Brian's drive to do things better.

He was also hugely generous, not only through his years of contribution to the NZDFA as chair of the Waipa Branch, but also through his willingness to open up the operation as a place where others could learn.

Over the years International Agricultural Exchange Association trainees, Te Awamutu College agriculture students and Massey veterinary students have benefited from visits to the Wellingtons' farm. Beyond that, they have hosted visits from other DFA branches and, taken part in the Focus Farm programme and then, more recently, in the Waipa Advance Party. In every case, Brian was keen to continue learning, but returned the favour in spades by sharing his experience and knowledge.

Outside his life as a farmer, Brian's passion was hunting and fishing and he amassed an impressive trophy collection.

Fellow deer farmer and close friend Martin Rupert, who also spoke at Brian's funeral, shared this long-time love of hunting. Before they moved to Geraldine, the Ruperts were neighbours of the Wellingtons and it was on Brian's advice that they took to deer farming after they'd had enough of dairying. "Brian became my mentor and helped us buy deer and get started."

Despite the families living in different Islands, the friendship continued to strengthen over the years, with the Wellingtons making the trip south in February to attend the wedding of the Ruperts' youngest daughter. Martin and Brian had numerous hunting adventures. "Brian was pure – no alcohol, early mornings and no mountain was too high or steep. He was the best hunter I have ever met," Martin said.

The two men spent many hours talking on their trips. "Brian was uncomplicated and easy to talk to. Family and friends were always first and we could talk farming and hunting forever."

Brian's hunting also took him to overseas and after he became ill, he and Jacqui were able to enjoy a last trip together to Europe and Canada. He and Martin enjoyed a hunt together last December and Brian was able to continue his adventures until just a few weeks before his death, with some helicopter hunting at Te Anau.

The deer industry and Brian's family and friends have lost a unique and generous man. ■

Advance Party Conference

by Phil Stewart, *Deer Industry News* Editor

Eighty-three Advance Party (AP) members, facilitators, staff and industry representatives gathered at the Brentwood Hotel in Kilbirnie, Wellington on 25 May for the third annual Advance Party Conference, held this year back-to-back with the Deer Industry Conference.

THE CONFERENCE INCLUDED 55 farmers plus 15 facilitators, including 33 AP members attending their first conference, with a great turnout from Waipa and the new Tasman/Marlborough groups.

The format was similar to the highly successful formula used at the Methven conference last year, with participants moving around a series of four structured sessions involving six workshops in each. These were interspersed with presentations by individual APs on their projects.

"I was very pleased with the AP conference," says DINZ P2P Manager, Innes Moffat. "We knew the split-day format in Methven last year had worked very well, so we were a bit unsure how a single day in Wellington would go (and not just because of the wind).

Flying high: DINZ Board member and proud Hawke's Bay deer farmer, Ian Walker (left), presents the award for best presentation to Geoff Smith (Hawke's Bay Fast Finishers) for his presentation on using a drone as a management tool.

"In the end, we easily exceeded our target of 50 AP members. It was really valuable for the facilitators to attend because they get to listen to what farmers are talking about and what is affecting them day to day, so it's a valuable learning experience for them too.

"Everybody had indicated what workshop topics they wanted to be involved in, and I think we got that mostly right."

Moffat says the most popular topics were hill country development, weaner growth, weaner health and genetics. Groups also discussed nutrition requirements for lactating hinds, velvet stags and R2 hinds.

"We want to make sure these days continue to evolve and next year we will place more emphasis on sharing results and analysing the impact of some of the suggestions in some sessions, but we also want to respond to what AP members want to discuss."

Fourteen Advance Parties made presentations on their activities, as follows.

Otago: Sean and Cassie Becker talked about extending irrigation and dealing with issues such as Johne's disease, parasite control and good utilisation of resources in a dry area.

Southland Elk/Wapiti: Jim Cameron described the results of an on-farm trial to test the impact of leptospirosis vaccination on reproductive performance and liveweights (see page 16 for a full report).

North Canterbury: Annette Marr talked about the role of the Advance Party in farmers learning from each other and improving performance through the spread of new ideas.

Waipa: Hamish Clarke described a project on the farm he manages implementing a "spray and pray" programme on 6 hectares of poor hill country, done with the support and advice of his Advance party colleagues (see page 16–17 for a full report).

Hawke's Bay Fast Finishers: Geoff Smith wowed the audience with aerial footage from the drone that he and wife Caroline use as a management tool on their sheep, beef and deer farm near Te Pohue. (Available on YouTube: https://www.youtube.com/watch?v=JEKCDRcqTr8, or search on Hawkes Bay Fast Finishers Drones for Deer. See also page 31 of this issue.)

Hawkes Bay Originals: Karen Middelberg talked about the group's plans to deal with drought and, in a moving tribute, described the "ideal AP member", epitomised by the late and much missed John Spiers.

Central Regions: Pania Flint discussed a trial using fodder beet on Advance Party member Fraser Laird's farm, where grazing in situ was compared with grazing lifted bulbs.

Tasman/Marlborough: Urthe Engel described two projects by members. Geoff and Nic Hayes came up with a plan to help foil stags that had been damaging fenceposts, while Tim and Julie Robilliard reconfigured lane and holding paddock design to make deer easier to move and manage.

Mackenzie: Hamish Mackenzie talked over a project designed to improve hind performance by more consistent weighing and monitoring, better feeding during lactation, as well as by introducing superior maternal genetics.

Southland Breeding and Finishing: Bruce Allan described what members were doing to get more fawns on the ground and better growth through improved feeding in winter, especially with fodder beet.

South Canterbury/North Otago: Tom Macfarlane worked with his Advance Party colleagues to analyse the benefits of breeding and finishing versus finishing only, finding that the numbers stacked up well for breeding and finishing.

Wairarapa: Quentin Connell said his group was still developing ideas but had learned a lot from its more established neighbours in Hawke's Bay, especially regarding winter feed crops. One of the group is the local Taratahi training farm, which has leased a block and is trying to get weaners to grow bigger, faster.

Canterbury: Lorna Humm told the conference about a project to minimise stress and maximise growth in weaners bought-in from breeding properties for finishing. They found that getting all animal health treatments (vaccination and drenching) done before the weaners were moved was a better option.

Gisborne: Andrew Cribb said this is a new group and at their first gathering they identified some of the main production constraints such as hill country fertility, fencing and the impact of wild deer. He said the group gave members the confidence to tackle these issues, including fence design and dealing with the wild stags.

Some of these presentations are available online if you log into the P2P website at: http://ap.org.nz/national-workshops/2017-national-advance-party-workshop

The award for best presentation went to the Hawke's Bay Fast Finishers. ■

- *Deer Industry News* will bring more extensive coverage from the Advance Party conference in following issues.

One of the workshop sessions gets down to business.

Weka chases weight gain on refurbished farm

by Tim Fulton, freelance writer

At Weka Farm on the West Coast, Landcorp farm business manager Kevin Clucas has a five-year goal to super-charge delivery of deer into the premium chilled venison trade.

IN 2015, THE property near Lake Brunner joined the Canterbury Advance Party, a group of about 10 deer farmers in the region facilitated by Wayne Allan.

Weight gain for the chilled market is the "big one" for Canterbury members, Clucas says. One of Weka's key targets is 70kg liveweight by 1 June.

"This allows us to predict the number of animals we should be able to get into the chilled season market. We are happy sending as many yearlings as possible to this early market and will forgo carcass weight to achieve this, as it allows feed to go to other stock classes or for conservation."

The farm aims for liveweight of 90–100kg during the chilled market season, typically amounting to carcass weight of 54–57kg.

To sustain the weight gains of recent seasons, Weka is injecting new blood into the herd by retaining 30 percent of fawns and culling older hinds at 10 years old.

Stags will be removed at scanning and any late, second-cycle hinds will also be culled.

"Our retention rate for the hinds is probably a little low. We're running 16 and 17-year-old hinds here, so we're desperate to get out of them," Clucas says.

Greater retention has always been a long-term goal, he says. "It just took a few years to get the developed land up and running. It's been a strategy we're stepping into."

Within five years, Clucas wants Weka to run 3,000 mated hinds and supporting replacements, as well as 1,500 rising one-year mixed-sex revenue deer.

His stretch goals are 92 percent scanning and calving as a precursor for an average pre-rut weaning weight of 60kg.

"One of the other targets is increasing survival rate. We've had very good scanning the past three or four years and first fawning is also pleasing for the past six or seven years (95–96 percent) but we've been losing them from there to weaning."

Staff tested for toxoplasmosis but not many were lost in pregnancy so most were probably dying at birth, he says.

"We dropped stock numbers by 300–400 and allowed them more feed. They're pretty much all-grass wintered whereas previously they were silage fed."

Last year the farm's survival rate was 84 percent and this year the figure rose to 92 percent (fawns weaned to hinds mated).

Clucas expects Weka's deer performance to improve as more land comes into production and more cash goes into infrastructure. He's gunning for a fully reticulated water scheme, stock-proof paddocks and a regular gorse clearance programme.

The ideal "finished product" would be pH of 5.5 on all undeveloped paddocks, Olsen P of at least 20 and pH of more than 5.8 on developed country.

A "nice to have" would be humping and hollowing (Weka pioneered the practice), ripping or land contouring, plus a capital lime and oversow programme.

As an immediate step, diggers are turning over wet, glacial moraine soil with traditional furrowing. Clucas says pasture improvement on some of that country has been stop-start at Weka over the years, as the priority had been humping and hollowing other parts of the farm for dairy.

Now, with dairy "not where everyone might have imagined", investing in pasture for deer grazing looks more appealing.

"We're farming to a pretty basic standard. We haven't even put fert on some of that country for many years but hopefully we can change that little by little."

At a company level, Clucas is looking forward to running Weka under a new, Landcorp-wide strategy. The deer unit is about to start operating as a standalone business, rather than a companion to the adjoining dairy and dairy support units.

The switch is part of Landcorp's move away from the old "One Farm" philosophy that required managers to prioritise the

Looking over Weka Farm.

interests of the group over individual on-farm businesses such as the Weka deer unit.

Clucas says that, in hindsight, the integrated approach created needless competition between farming units and make it hard to see how well each operation was performing.

"They were sort of operating against each other. 'Smudge lines' I think they called it."

Big-picture policy aside, Clucas is sure a combination of land and fencing improvements will make Weka's deer business more self-sustaining. For one thing, the farm will grow more of its grass and supplements.

"We're heading a wee bit into the unknown but we should be growing way more feed so we'll definitely conserve money there. We might be purchasing a little bit of grain but that will be it."

As the farm ramps up, Weka is working with Westland Regional Council to ensure it complies with local rules for nutrient runoff.

About 50 hectares of the property feeds directly into the Brunner catchment, while a further 300 hectares is tied to Lake Lady, which is linked to Brunner.

Landcorp has an agreement with the council not to develop those parts of the farm. "We won't be intensifying on that ground. We're pretty lucky because the farm sits on the other side of the hill so probably 90–95 percent of the runoff goes out the Arnold River and not into Lake Brunner."

Clucas says the Advance Party is helping to share ideas for best practice. Canterbury members have visited Weka twice so far and he says it was clear how much they had in common with the Coasters.

"It's a real contrast between West Coast and Canterbury in soil and climate but there are also a lot of commonalities when animals have to be fed."

On a visit last September, Clucas outlined his re-grassing policy on the hump and hollow ground, with blocks set up in feed such as tall fescue, plantain/clover, short-rotation ryegrass and a small amount of lucerne. The policy meant deer could be kept in rotations on the same feed for long periods. He says the Advance Party meetings are two-way conversations and it pushes performance harder. "We've started to see results but having people come here looking over your shoulder certainly focuses you a lot more."

At last September's meeting, for instance, the group shared ideas with Clucas on the ongoing issue of foot abscesses (fusobacteriosis) on the farm. The infection enters through foot damage.

He put rubber matting in the deer shed and is looking to address entry to the shed.

Before visiting Weka, the Advance Party had stopped in at another Landcorp farm on the West Coast, Ahaura. That farm had a fewer issues with foot abscesses and the group suggested sharp stones at the entry to the Weka deer yards may be causing problems.

Clucas says each Advance Party visit brings something different, including the odd logistical challenge. At a recent West Coast meeting, the closure of both alpine passes forced the touring Cantabrians to make a 10-hour trip home via Blenheim. As a regional Landcorp manager who regularly travels hundreds of kilometres around his region, he couldn't suppress a wry smile. ■

Sky's the limit for HB fast finishers

by Phil Stewart, *Deer Industry News* Editor

Chatting to attendees at the P2P Regional Workshop in Central Hawke's Bay on 14 March, the rising optimism in the industry was plain to see. The drought that had hit the region was in retreat and the 35 visitors were going into autumn with a much sunnier view of the year ahead.

AMONG THE VISITORS *Deer Industry News* spoke to were two farmers who were keen to build up their breeding herds; another had deer fences but no deer, and wanted to find out more at the workshop with a view to buying in breeding stock to add another stock class. Those are small but encouraging signs of an industry with growth on its mind.

The theme for the day was "Fast finishing using forage power and technology", with two local finishing operations sharing their experience and insights. The day ended with an intriguing look at the possibilities brought to farm management by drone technology, with a live demonstration by Geoff Smith. The day was facilitated by Simone Hoskin and supported by the Hawke's Bay branch of NZDFA.

Chicory the trump card at Forest Gate Farm

Duncan and Wendy Holden finish up to 1,100 weaners each year at their Ongaonga property, and hosted a farm visit during the workshop. They've been running deer at Forest Gate since 1982.

All their weaners come from one source in the central North Island and it is a strictly finishing operation – no breeding. The farm supplies First Light Venison with the aim of getting these deer up to 110kg and better. With forage crops, this is being achieved (Table 1). Duncan Holden said First Light offers a fixed price year round. "This allows me to focus on weight and the heavier we can get these deer, the greater the return. The first draft starts in September."

He said they aim to maximise dollar returns per hectare, within a sustainable system. Regular weighing and monitoring of growth rates is an essential part of the system and they weigh sample groups of 20 from each mob. The finishing operation is on irrigated flats and, apart from June–July when maize is introduced, FARMAX® data shows that feed supply is meeting or exceeding demand through the year.

The winter stocking rate is 10–12 deer/hectare and 18–25 deer/hectare over the summer under irrigation.

They are focused on growth rates and carcass weights, with a view to keeping on top of animal health challenges. They've tried various crop options and their experiences gave some valuable insights.

The weaners, which have been acclimatised to grain before they arrive, are also sexed and vaccinated before getting on the truck. "This is thanks to the good relationship formed with my breeder," Holden explains.

Table 1: Forest Gate Farm profile

Effective area	350ha (130ha deer fenced), 90ha irrigated (48ha deer)
Land class	Flat and rolling
Pastures	Mostly permanent on dryland
Crops	Maize silage, chicory, plantain/clovers, brassicas, Italian ryegrasses
Supplementary feed	Maize grain
Deer policy	Trade up to 1,100 annually, to 15 months maximum
Sheep and beef policy	Trade 400 bulls on techno system, gone by December as feed dries up. 200 Wagyu cattle wintered on fodder beet Lambs: 1,800 wintered on southerly side too wet for cattle; gone by September Ewes: 100 kept to tidy lanes, driveway etc.

This year's crop arrived post rut as the breeder was wanting to match his feed curve better. Holden said the May arrival suited well this year, as it allowed time to finish remaining deer from the previous season.

They hit the ground running, going straight onto irrigated forage crops at 12/hectare to make the best of the autumn growth potential. By June they go onto Moata ryegrass, supplemented by maize grain using Advantage feeders. Holden said the feeders help ensure all animals get a fair crack at the grain. While the units might seem expensive, he said they have a place and are simple to set up and operate, with low labour costs. The supplementation makes up for the seasonal decline in grass and clover production.

By September the pace picks up again, with the finishers fed ad lib on irrigated forage.

R2 finishers from the previous season at Forest Gate Farm. With a fixed price available year-round, the Holdens can concentrate on achieving good weights.

Holden is a great fan of FARMAX and used it to analyse his gross margins per kilogram of dry matter (DM) over the three most recent seasons. The weaner stags ranged from 30c/kgDM up to an impressive 36c. The hinds were more variable, ranging from 16–24c/kgDM. The average margins per animal were $169 for the hinds and $197 for the stags.

The Holdens have tried most crops and are willing to keep experimenting to find the best fit for their system.

Fodder beet for deer has largely fallen from favour in the region and Forest Gate Farm was no exception – they have stopped growing it after seven seasons.

A crop of summer **Pasja** was sown on 8 hectares last November. While the lambs did well on it, gaining 350g/day, a mob of hinds didn't flourish, putting on a modest 150g/day through to the end of February.

A mix of **Tonic plantain, Relish red clover and white clover** on 10 hectares the summer before last gave an excellent result in a mob of very small (56kg) weaner hinds. Grazing from 11 November 2015 to 21 March 2016, they stacked on an impressive 257g/day. While the plantain has good longevity, Holden said it starts to get dominated by the clovers and needs a lot of weed control. The mix "ran out of guts" after three seasons and has since been sprayed out.

But it's a crop of **Choice chicory** that seems to have turbocharged growth rates in this most recent season. The Holdens put 200 88kg weaner stags onto the crop in late November and were able to take off four successive drafts of 50 each from 12 January (average 106kg) to 21 February (115kg). Their average gain through the summer on the chicory was 360g/day.

A healthy crop of chicory on Forest Gate Farm.

Holden said the chicory is part of a four-year rotation, being undersown into an Italian ryegrass after 2–3 years. "It likes the warmth, so it shouldn't be sown before October." The rotation starts with peas, which help get the weeds cleaned up.

Water for irrigation

The Holdens' irrigation water also comes from a bore and is applied using a gun or K-line. They have a 110m bore that has sufficient water to supply their system. Holden said the total volume used is regulated and the impending Plan Change 6 in Hawke's Bay has big implications without the proposed Ruataniwha dam going ahead.

He said irrigation currently costs them 8 cents/kgDM grown, at about 11 cents/m^3 of water. That is about half what the water from the Ruataniwha dam scheme would cost, but the Holdens believe in the concept and have signed up to it.

"We would use our water first. We are going to have to be smart about the way we use water, measuring what we need so we aren't flying blind."

Comeback for Sulla?

The once-popular legume fodder crop Sulla hasn't been grown in New Zealand over the past 10 or 15 years, but the Holdens are growing an experimental paddock of it following a seed company's offer of free seed to trial it.

Duncan Holden is non-committal about its value at this stage. While deer love the crop, it can be challenging to grow. Weed control and aversion to too much water are problems.

The plant is a relative of red clover and emerged from the same breeding programme that developed crops such as chicory. Advance Party facilitator Simone Hoskin said it has high levels of condensed tannins. "It's good for deer, but not so much for sheep and cattle, although it does prevent bloat in cattle."

Duncan Holden and Simone Hoskin talk over the prospects for Sulla.

It's a Mediterranean crop that loves heat and free-draining soils, but can go dormant in summer if it gets too hot. It was originally grown for cut-and-carry feeding. Hoskin said deer did well on it in Massey trials, where it also grew happily on clay-based soils.

She said it can fill a gap in summer, when it produces high volumes of quality forage, up to 20 tonnes per hectare.

The crop at Forest Gate Farm looked healthy enough after one grazing, but was getting infested with fat hen and deadly nightshade.

Holden said he would keep the crop through the winter and spring and see how it goes before making any decisions about persevering with it.

Lucerne great insurance at Haunui

As fellow First Light suppliers who also run a finishing programme in the district, it's not surprising that James and Sue Hewitt share a lot in common with the Holdens. But it's not just the fact that they farm in the same conditions: the active exchange of ideas within their Hawke's Bay Fast Finishers Advance Party means they have the confidence to pick up on methods that work within the group.

Top: Sue and James Hewitt in a paddock of Shogun (a tetraploid hybrid short-rotation ryegrass), chicory, plantain and red and white clover. Bottom: Closeup of the mixed sward.

The Hewitts finish beef and venison on their 165 hectare farm, Haunui, at Wallingford. They buy about 700 weaners in April and May using a 15-month policy that sees a draft of 200 going off in October-November and the balance from January to May.

They've used a variety of forages, each having its strengths and weaknesses. At this stage, chicory and to a lesser extent lucerne, are providing the best results in their deer.

Having no irrigation, maintaining high liveweight gains during summer as pasture quality falls off is a challenge, and forage crops are essential.

They currently have 6 hectares of lucerne and that area is expanding onto some rolling country. The stand is in its sixth year. Fodder beet, yielding 26–27 tonnes/hectare is grown for the bulls to keep them going for 120 days through winter while the lucerne is in recess. Sue Hewitt added that getting the soil back into good shape after a crop of fodder beet could be a challenge.

Kale has been used in the past, but being summer dry they struggled to get more than 8 tonnes/hectare.

Fescue and pure swards of plantain have also been used, but they have moved away from these too. "Deer didn't do that well on pure plantain," Hewitt said, adding that it was OK in a mix with grass, where it was like having a bit of "sugar on your weetbix".

Chicory is sown in spring (9kg/ha) after a crop of fodder beet and eventually chewed down rather than sprayed out. Hewitt said in autumn, Shogun ryegrass (15kg) is drilled in under the chicory with clover (7kg) and plantain (2kg) spun on at the same time. The Shogun is good for three or four years. In existing swards with lower proportions of chicory, the Hewitts are now drilling it in at a higher rate (although it can also be spun).

"The chicory provides the rocket power in spring and summer, while the Shogun comes into its own in autumn and over winter," Hewitt said. "I like a good fruit salad approach. If the mix isn't right you can stitch in something else to fix the balance.

"Our best growth rates are on the chicory," he added. In a dry summer, however, lucerne is a lifesaver. From October 2013 to January 2014 their stags were achieving not much over 100g/day, but a mob on lucerne stacked on 354g/day. Last spring they put 68 lighter R1 hinds on lucerne for four weeks and got a good 372g/day. This helped them close the gap with the 20 heaviest R1 hinds, which grew by 221g/day on excellent grass. The difference between the two groups reduced from 9kg to 5kg over the four weeks.

A group of light R1 stags also did extremely well on the lucerne late last year. They gained 492g/day over four weeks from 10 November to 8 December, before settling back to a still-good 351g/day through to 23 January.

During a dry summer lucerne can be the only green thing on the farm and while it's proven its value, the Hewitts don't want to get too dependent on it.

The experience with another group of light R1 hinds through the 2016/17 summer threw some interesting light on the merits of different forages, as well as the impact of changing social structures and feed transitions (Table 2). The mob of 74 went from pure chicory to grass and chicory, then 14 R1 hinds were added to the group when it was moved onto lucerne. The combination of a feed change and disrupted social order put a crimp in growth rates, before they settled down and started growing faster.

Table 2: Growth rates on chicory, grass + chicory, lucerne for 74 light R1 red hinds

	Chicory	Grass + chicory	Lucerne*	Lucerne
Weight 10 November	53kg			
Weight 12 December	69kg	69kg		
Weight 23 January		77kg	77kg	
Weight 16 February			80kg	80kg
Weight 6 March				86kg
Liveweight gain (g/day)	487	190	155**	310

*14 hinds added to mob on 23 January

**Growth check caused by feed transition and disrupted social order

Table 3: Growth rates on chicory for two mobs of R1 deer, 2016

Mob 1	10 October 2016	23 October 2016	Carcass weight 25 October 2016
Ave. weight (kg)	93.18	100.13	54.8
Ave. liveweight gain over 13 days (g/day)		535	
Mob 2 (remainder of mob)	**10 October 2016**	**6 November 2016**	**Carcass weight 7 November 2016**
Ave. weight (kg)	91.7	106.62	57.95
Ave. liveweight gain over 27 days (g/day)		553	

Hewitt said he has achieved growth rates of up to 553g/day (average) on finishers that stayed on chicory the longest (Table 3).

Chicory helps get the pre-Christmas drafts up to weight quickly. He said the crop can get knocked back in the summer dry period, but by autumn it was "smoking" again.

Simone Hoskin said that information like this showed the value of regular weighing and keeping good data.

She said there is no perfect forage. Environmental conditions varied from year to year and when herbs like chicory or plantain were stressed they produced secondary compounds that made them bitter and less palatable, while also changing the way they fermented in the rumen. A herb mixed with something like a clover gave more reliably consistent weight gains rather than a pure plantain or chicory.

Getting high

They don't bark and they can't open and close gates, but drones are starting to show their worth as a farm management tool. Geoff and Caroline Smith, who farm near Te Pohue in northern Hawke's Bay bought a DJI Phantom drone, initially "as a toy" but now as a useful piece of kit.

Geoff put the drone through its paces outside the Ongaonga Golf Club venue for the Regional Workshop, impressing guests with its speed and manoeuvrability.

He said Caroline, who manages the sheep and beef side of the farm, has used the drone to do a lambing beat. "She can buzz a cast ewe and get her back on her feet." Geoff works as an electrician and looks after the 200 hinds – a herd he wants to increase to 600.

The drone is reasonably quiet and doesn't stress the stock too much, but it can be used to move them. "We are looking into getting some kind of noise maker so it's better for mustering."

The drone has to be operated with line of sight and can't go higher than 125 metres above ground level without a CAA permit. It has a "safe mode" that limits speed to 35km/h with forward and down sensors that help prevent crashes. Out of safe mode, it can fly up to 72km/h.

A smartphone or tablet is used on the small control unit so the pilot can see what the drone's camera is seeing. Smith said it can tolerate drizzle but not heavy rain and can fly in a breeze but not strong winds.

At 30 minutes, battery life is reasonably limited, so Geoff has three. The drone flies back to "base" when its battery gets too low.

Geoff has used the drone to shift weaners while sitting with a coffee on the deck, something he admits is "quite fun". There is plenty the drone can do, from checking stock, pasture covers and troughs to scaring birds on vineyards. It's also quite handy for checking out the dams during duck shooting.

The setup cost the Smiths about $2,500, although the same rig is now available for less than $2,000. "My four-year-old could fly it," Geoff concluded.

Geoff Smith (right in grey shirt) shows off the drone's capabilities outside the Ongaonga golf club.

Going on a fencing offensive

Otago Advance Party members, Glen and Renee Harrex, are fencing their way to improved fawn survival, weaner growth and utilisation of their irrigated land.

ON GREENVALE DOWNS, a partly irrigated 800 hectare farm near Becks in Central Otago, fawn survival to sale has hovered around 86–88 percent, but Glen Harrex believes they can bump this up to 92 percent by fencing another 100 hectares of dryland.

Until now, the 730 mixed age hinds have fawned on the 200 hectares of better-quality irrigated pastures, but it's been less than ideal due to the in-your-face spray treatment from solid-set irrigation, the regular shifting of k-lines and movement of various stock groups through their paddocks.

The net result has been mis-mothering and fawn deaths, usually within the first few days of birth. Although unhappy with the losses, Harrex believed the trade-off was better-lactating hinds and therefore faster-growing weaners for the pre-Christmas chilled market. However, he changed his thinking after visiting another Otago Advance Party farm that was achieving similar weaner growth rates – without the fawn losses – on more extensive dryland hill country.

The Harrexes decided that new fencing on a dryland block could be the game-changer they were after and in winter 2015 they fenced 84 hectares at a cost of $13.64/metre (Table 1).

Table 1: Fencing costs – Stage 1

8,777 metres, 84 hectares of paddocks with central lane	
Material	$83,650
Install	$46,516
Tree trim	$2,000
Less	
Credit for unused material	$7,820
Contribution from neighbour for boundary fence	$4,600
Total	$119,746 ($13.64/metre)

Note 1: Estimated internal rate of return over 10 years is 15 percent

Note 2: Five years to pay off initial investment if there is an annual net benefit of $25,000.

The block was subdivided into six paddocks with a central lane using 16 run netting at a cost of almost $120,000. Advance Party facilitator, Simon Glennie, has estimated the fencing will take 2½ years to pay back. This FARMAX® estimate is based on an extra $43,000 of annual income comprising:

- $10,000 from the extra 35 fawns due to a fawning increase from 88 to 93 percent, and
- $33,000 of meat/grazing income from weaner deer, cattle and contract grazed dairy heifers.

The on-farm results validate the FARMAX model and prove that most of the value in dryland fencing is from improved utilisation of the irrigated pasture.

"The biggest gain has been from a farm system perspective, in particular the opportunity for higher-value enterprises on the irrigated paddocks such as weaner finishing and growing bulls faster," Glennie says.

"Being able to offload hinds from the irrigated pasture during the spring growth flush has been a huge advantage."

Instead of losing feed quality while hinds fawn, the irrigated paddocks were grazed by yearling bulls which grew at 1.8kg/day over five months. A stocking rate of five bulls/ha was maintained over the period producing a $1,500–$1,800/ha net margin. At the same time, hinds that would have been fawned on the irrigation at 7/ha were stocked at 6/ha on the dryland with good fawn survival. When feed cover on the dryland reduced, hinds and weaners were moved onto the irrigated pasture which had the two-fold benefit of increasing hind lactation and condition for mating. Pre-winter growth rates of weaners were improved by about 6kg, producing a further 190 weaners for the higher-paying chilled venison market.

The new fencing appears to have significantly improved fawning performance based on a comparison trial of mixed age hinds from fawning until tagging. There was an 85 percent fawning on the existing dryland fenced paddocks. There were also six instances of fawns poking through fences and stranding themselves, although Harrex says it happened in one paddock that has a long history of mis-mothering. Fawning on the irrigated pasture was 96 percent, and 95% on the newly fenced blocks with no instances of fawns through fences or in lanes.

Individual paddock results showed that mixed age hind performance was reasonably good on all areas and that R2 results were comparatively poor on all areas. New dryland areas performed well, but whether this was due to the fencing or the subdivision being on a quieter part of the farm remains up for debate.

Harrex is stoked with the results to date.

"It wasn't exactly rocket science but it's given us the ability to put the right animals in the right place at the right time." ■

Renee and Glen Harrex: The investment in fencing should pay for itself quickly.

Fertility basics at North Canterbury workshop

by Phil Stewart, *Deer Industry News* Editor

When about 35 people gathered at the property of Mark and Gill Forrester for a P2P Regional Workshop on 22 March, there were signs the three years of drought might be coming to an end. The excellent rains in the months since then have borne that out, but the 10 members of the North Canterbury Advance Party will be dealing with the consequences of the prolonged dry spell for some time yet.

THE FORRESTERS RUN 8,000 stock units comprising sheep, beef and deer on three neighbouring blocks at Waipara Gorge near Amberley in North Canterbury. They bought the home block (Forrest Downs) in 2001 and have since leased two other blocks along the same road. About 200 hectares of the 400 hectare Forrest Downs is now deer fenced, with a further 240 hectares of the Claremont block's 600 hectares also deer fenced.

The deer that came with Claremont farm when they leased it were the first that the couple had encountered and they embarked on a steep learning curve after 100 of their 400 hinds went into winter dry. "Things have improved drastically since then," Mark Forrester said.

Over time, the Forresters have been reducing ewe numbers and building up the deer and cattle. "The sheep are good high-producing ewes but the returns outside the lamb crop are pretty miserable for the amount of work we had to put in," Mark said.

Mixed aged hinds in with the stag on Browntop pasture at Forrest Downs.

Gill Forrester said the previous spring had been good and in November they sold all their lambs except replacements as well as 1,000 ewes. "It's been a really good move," she said. They have now increased deer numbers to 270 yearling hinds and 850 mixed age hinds. Angus cow numbers are up to 300 (kept on the hillier Forrest Downs block) with 290 weaned calves being run on Claremont. Of the sheep, 1,000 ewes and 350 mated hoggets remain.

The R2 and R3 hinds fawn at Claremont, which is also a finishing block. The mixed age hinds fawn at Forrest Downs.

They pre-rut weaned for the first time last year and it went well. This year an endophyte problem on Nui-type pastures at Forrest Downs forced them to put one mob on rape until the problem subsided, but not before losing two fawns and a hind. The weaners were on a radish/kale hybrid crop when we visited in March for the Regional Workshop and were due to move to Claremont for more rape and fodder beet through the winter.

Used tyres make useful supplement depots at Forrest Downs.

The rest of the mixed age hinds at Forrest Downs were going to be post-rut weaned this year as they were in very good condition – quite an achievement given the tough conditions in North Canterbury since Christmas. All the R2 and R3 mobs at Claremont had been pre-rut weaned, and the strategy for the farm is for all hinds to be pre-rut weaned.

Last year they finished 800 weaners, with the first draft away on 18 September and most gone by late October. The last were gone by 12 December and overall they killed a month earlier than usual, with average carcass weights of 55kg, the best they had ever achieved.

Gill said the members of the North Canterbury Advance Party had encouraged them and given them confidence to keep expanding the deer fenced area.

The Forresters are also wanting to improve pastures to support more deer while reducing supplement use, at the same time increasing weaning weights and routinely pre-rut weaning the entire herd.

Mark said the weaner weights achieved by nearby Advance

Weaners with aunty hinds on kale at the Claremont block.

Party colleagues, Lyndon and Millie Matthews had been fully 9kg heavier than theirs, which inspired the Forresters to make far better use of strategic feeding in autumn. He said better use of weighing and monitoring liveweight gains per day meant they could respond better to changing conditions.

At Claremont there is a large self-feed barley silage pit in a sheltered paddock well away from water courses. It gets used during the worst of the winter, for about 100 days. It is supplemented with hay and sometimes baleage if the weather gets bad.

Fodder beet is another important winter feed and the Forresters were among the first in North Canterbury to use it.

From left: Hamish, Gill and Mark Forrester and Agknowledge Director, Dr Doug Edmeades. The hill in the distance at left is being redeveloped with a "drought mix" of a two-year ryegrass, red and white clover, chicory and plantain.

Mark commented that it is only expensive if it fails to perform.

Palm kernel is also used at Claremont, delivered to the deer in half-tonne lots inside used tractor tyres.

Straight talk from soil expert

Guest speaker at the Regional Workshop was Doug Edmeades, a soil and fertiliser expert with a reputation for directness. Edmeades is Managing Director of Agknowledge, an independent soil fertility and pasture nutrition advisory service.

He made a strong case for getting back to the basics and making better use of pasture legumes on dry land. "Clover fixes nitrogen for free. You can grow 1kg of clover/ryegrass pasture for 4–5 cents, versus 15–20 cents for crops. Look after your legumes because they are the engines driving our systems. If you can grow more pasture, why bother with crops? We've made a simple system unnecessarily complex."

It was too easy to make excuses such as weeds, weevils or drought for not looking after clovers, he said. "Clover fixes N well, but it has a poor root structure so needs more nutrients than grass. If there is 30 percent legume in a pasture it will fix enough N. Ideally it should be 40 percent clover plus ryegrass and plantain. Clover needs 16 nutrients as all plants do, and will only grow as fast as the most significant one allows."

He said many of the 16 nutrients were easily available in soils (iron, carbon etc.) but the ones to worry about were phosphorus, potassium, sulphur, magnesium, molybdenum as well as a high pH. The health of clover in a pasture was the "canary in the mine" he said. Raising the pH to clover-friendly levels didn't have to be expensive. "Finely ground expensive lime at $200 a tonne is no more effective than coarser lime. The old stuff still works."

The nutrient needs of lucerne and all clovers were the same, but red clover and lucerne had the advantage of deep tap roots so could do well in dry conditions, he added.

Edmeades took a swipe at both fertiliser and seed companies. He said fertiliser companies were distracted by the fight for market share as well as environmental issues, while seed companies were focused on selling their cultivars. The free advice given by fertiliser companies was not that good, he warned, adding that the companies are moving towards more expensive branded products rather than generics. "We start from the point of your farm goals, then doing tests and seeing what you need to do to reach the goals. What fertilisers are needed to get there and what's the best deal available for getting that blend?"

Seed companies tended to scaremonger about pasture persistence so they could sell more seed, Edmeades said. "Some well-fed pastures are 50 years old!"

Pasture persistence was linked to soil fertility. If clovers were underfed, they wouldn't be recycling N effectively, he said.

Edmeades urged farmers to use soil tests but to be careful to take samples away from dung and urine patches or stock camps. "Don't just go on the results of your soil tests, though. Take a good look at the pastures too. Sometimes the test will look okay, but the pastures will be rubbish."

While he acknowledges that ploughing can damage soil structure and burn off N from the soil, he has no time for those who advocate concentrating on organic matter and soil biology to "unlock nutrients". That approach, he said, is "bullshit".

The starting point should be feeding soil the 16 basic nutrients that legumes need, he advised, and all else will follow. "Don't

worry about feeding bugs. No farmer ever went broke putting on the right amount of fertiliser."

Potassium, molybdenum and sulphur were often deficient in the South Island. "It's cheap to fix, but do a soil test first."

He said where moisture was a constraint, as it had been in North Canterbury, it was important to make the most of the short windows that were available for pasture growth. In general terms he advised dividing the farm into land classes and working out the optimal P levels for each. He said phosphorus at about $2.80/kg is the most expensive and sulphur ($0.70/kg) the cheapest with potassium in the middle. "We need to work out the economic ranges for each block and be sure that nutritional levels aren't limiting potential. Once the optimal levels are reached, it's a question of maintenance – working out what is going off the property and then replacing it."

As a general rule, about 30kg/ha of P, K and S was needed for maintenance. Across all pastoral farming, people usually spend about $10 per stock unit, he said. ■

Climate of doubt

His advice on fertilisers and plant nutrition was warmly received by the visitors to the Regional Workshop, but Doug Edmeades' "postscript" comments on global warming had a more neutral reception. Unlike most in the scientific community, he is a climate change sceptic. He said carbon is one of the essential 16 nutrients captured by plants and saw increasing CO_2 levels in the atmosphere as a positive.

"The planet is greening because of increased CO_2. Plant growth will increase by 20–30 percent because of higher levels."

Edmeades disputed that the planet is continuing its warming trend. "There's been no warming for 18 years. The earth always warms and cools – temperatures peaked in the 1990s and now they have plateaued. You are being fed BS [about climate change]."

"Then why are the icecaps melting?" was the only response from the group. ■

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A great environment for profitable deer farming

by Phil Stewart, *Deer Industry News* Editor

Careful management of the environmental footprint, feeding and the benefits of comprehensive monitoring were the focus for a P2P Regional Workshop at Landcorp's Stuart Farm in Southland on 9 March.

ABOUT 40 PEOPLE, including other members of the Southland Advance Party, attended the event in perfect weather.

The 3,057 (2,721 effective) hectare flat-to-rolling property southwest of Te Anau is an important cog in Landcorp's deer machine. It carries 3,700 red commercial hinds and 750 stud hinds (the stud has absorbed animals from Landcorp's Rangitaiki Station in the North Island). Eighty percent of the commercial hinds are mated to red stags, with the balance put to wapiti terminal sires. The deer make up 55 percent of the stock units on the property with sheep accounting for 24 percent and cattle 21 percent.

Red deer genetics are supplied to other Landcorp properties in throughout the South Island and this reach will soon extend to the North Island.

Stud hinds at Stuart Farm.

Stuart Farm is one of 11 FarmIQ demonstration farms throughout the country and the only one among this group that is focused on deer. The farm joined FarmIQ in 2013 and, with three red meat-producing species on one property, is ideally placed to pick apart the performance of each enterprise.

Landcorp Farming Innovation Manager Paul McGill told visitors how FarmIQ is being put to work. It was introduced as part of a three-year Primary Growth Partnership programme to boost performance at the farm.

The programme had three simple goals:

- $1m EBIT (earnings before interest and taxes)
- Expenditure no more than 67% of income
- 180kg of product (average price $6.50/kg) per hectare.

McGill explained that the farm had topped $1 million EBIT in 2011, but commodity prices for both sheep and deer that season were very high, so recapturing that performance would be challenging. While cattle are part of the mix at Stuart, the programme focused on deer finishing and sheep breeding to help achieve their goals.

Visitors to the P2P Regional Workshop at Stuart Farm on one of the farm stops.

The farm has long winters of about 110 days, so very good planning was required, especially to help fill the gap between crops being finished at the end of winter and pasture coming away in spring. McGill said FARMAX® and FarmIQ were both deployed to monitor and plan. Sheep were also RFID tagged to help with the monitoring.

In the case of deer, weighing in autumn revealed the weaners that were likely to hit spring chilled season weights and they were mobbed up and fed accordingly.

The progress made over three seasons has been exceptional (Table 1). For the first three full seasons, the average kill date was brought forward by a month, while the total number of carcasses produced and liveweight gains in grams per day increased by about 35 percent. Performance for the current (2016/17) season to date appeared to be following the trend.

McGill said that of the different genotypes, wapiti cross stags (not surprisingly) grew the heaviest at the earliest dates. They returned a healthy 36c/kg dry matter (DM) consumed. The wapiti cross hinds returned 25c/kgDM and the red stags, 27c/kgDM.

Deer don't have the place to themselves, and one of the

Table 1: Carcass performance, Stuart Farm, 2013/14 – 2015/16.

Season	No. carcasses	Average kill date	Average carcass weight (kg)	Average growth rate (g/head/day)
2013/14	1,705	3 January 2014	52.1	118
2014/15	2,039	28 Nov. 2014	54.2	154
2015/16	2,316	4 Dec. 2015	53.5	157

Source: Landcorp, FarmIQ

challenges was to get the deer and sheep systems working together better, within the environmental constraints of the farm.

Traditionally the ewes at Stuart Farm were lambing in late July/early August. This was putting pressure on the system at the expense of the deer, as the ewes were spread over the whole farm at light stocking rates while the deer were still on crop.

The current manager Mark Bolger has pushed the lambing date out to reduce cross-species competition and provide ewes with better conditions for lactation. Reducing some of the head start that sheep had might seem counter-intuitive, but the results were very positive. McGill said delaying lambing had allowed better growth within a shorter timeframe, which flowed through to good mating weights for their hoggets and two-tooths. Running FarmIQ meant the effects of these changes could be monitored closely with tweaks where necessary.

Stuart Farm Manager, Mark Bolger.

Bolger said nothing would lamb before 15 September this year; this way would allow more feed to be carried through for hinds and fawns, he said.

While performance in any one season can be pushed up or down by external conditions such as market prices and weather, the trend at Stuart Farm over the three years of the project was impressive (Table 2).

The EBIT return had doubled in just three seasons while production per hectare had been growing about 6 percent a year.

McGill said it is very difficult to drive expenses down, especially with the need for winter cropping; the better performance stemmed mainly from the higher income. The changes they had made allowed more deer to be finished earlier and heavier, opening up the way for better sheep productivity later on.

Lambs were being born a month later and weaned a month earlier than before, so overall lamb production was down, but they were no longer competing against other stock classes, Bolger explained. "It's always about prioritising feed into the most productive class. Sometimes its lambs or cattle, but mostly it's the deer."

McGill said FarmIQ had evolved from being purely animal performance focused to encompass people and safety, farm environment and systems and processes. Creating a Land and Environment Plan could be done within FarmIQ with an action plan allocating tasks and links to the farm budget.

He said the future would see more integration and data sharing with external systems like FARMAX.

It is used to record animal health treatments and integrates well with NAIT. "It will be perfect for electronic Animal Status Declaration forms when they're introduced," he added.

"Staff find it easy to put in information on things like pasture covers, deer sales and animal health records. It's a good idea to start out with a basic system and then grow it as you need to."

Making a good business better

Attendees at the Regional Workshop brainstormed opportunities for Stuart Farm, while also exploring how the Southland Advance Party could take things to the next level. This is what they came up with.

Opportunities at Stuart Farm

- Modify water troughs to keep the deer out.
- Make better use of cattle to clean up pastures on the fawning blocks.
- Consider using plantain or lucerne (although cultivation for these is tricky at Stuart Farm).

Table 2: Stuart Farm performance 2012/13 – 2015/16.

	2012/13 (prior to PGP programme)	2013/14	2014/15	2015/16
Capital value	$22m	$22m	$24m	$24m
Gross farm income	$2.58m	$2.81m	$3.09m	$3.14m
Farm expenditure	$2.06m	$2.06m	$2.24m	$2.12m
EBIT (per ha)	$521,000 ($190)	$757,000 ($275)	$853,000 ($310)	$1,018,000 ($395)
Expenditure: Income	79%	73%	72%	68%
Return on capital	2.4%	3.2%	3.6%	4.2%
Kg product/ha	162	172	180	192

Source: Landcorp, FarmIQ

- Improve the lanes, using lime rock to help reduce foot injuries.
- Wean R2s and R3s earlier to help lift conception rates.
- Use FarmIQ to better analyse what paddocks or blocks are performing best.
- Feed post-rut weaned hinds and their fawns as well as possible in autumn to take best advantage of that growth period.

Advance Party

- Bring in a specialist to help run group-wide trials to manage issues such as grass grub that are common to all in the group.
- Greater use of benchmarking, recording and information sharing.
- Better use of tools such as FARMAX with emphasis on automating data capture.
- Encourage hind retention and growth of deer enterprises.
- Greater clarity of outcomes and finding ways to translate lessons learned for the wider industry.

Environment work

Regional workshop guests were taken on an extensive farm tour, with a stop to look at the work being done to minimise losses of sediments, nutrients and bacteria.

The group was joined by Dave O'Connor and Fiona Young of Environment Southland's Land Sustainability Team, along with Nicol Horrell, Environment Southland Chair, and Councillor Maurice Rodway.

O'Connor said Southland was a complex and challenging farming environment, especially in winter and early spring. Winter crops presented a risk of contaminants getting into waterways, namely sediments, phosphorus, nitrogen and *E. coli*. In the case of deer, the risk centred around sediments and phosphorus, mainly thanks to deer behaviour (wallowing and fence pacing). This could also lead to *E. coli* contamination when wallows were connected to waterways. Careful management of "critical source areas" (CSAs) and ephemeral waterways was vital, O'Connor said.

Anything that could channel contaminants into waterways – overland, through free-draining soils or via tile drains – was considered a CSA. On deer farms, areas around gates, along fencelines and wallows were also vulnerable. "They're not so much waterways as pathways," he said.

The sloping gully system on show at Stuart Farm was an ideal example of a series of ponds and sediment traps that could keep contaminants on the property and help protect water quality. "The ponds can be cleaned out periodically and all those valuable nutrients returned to the farm."

O'Connor said careful evaluation was needed before committing a paddock to winter cropping. "What's going to be downstream? If there are too many critical source areas it might be best to go grass-to-grass."

Ideas to avoid losses included:

- avoid overstocking
- fencing around CSAs or leaving a buffer
- excluding stock from sensitive areas as long as possible by grazing crops from the top of the slope down to the bottom (the "last bite" technique)
- avoid ploughing near CSAs
- minimum tillage
- plough across the slope, not down
- well positioned water troughs
- encouraging stock away from wet areas
- long breaks
- a "bail-out" option in case of bad weather (a dry or more sheltered paddock)

Part of a connected series of well-designed ponds/sediment traps at Stuart Farm.

- cut and carry crops
- use well positioned sediment traps downhill of any block grazing.

O'Connor urged farmers to seek advice when planning to identify CSAs and minimise losses of nutrients and contaminants. He said it wasn't necessary to fence off every last small runner, but noted that ephemeral (intermittent) streams needed to be included in planning. Tile drains could be an expensive option, he warned. They were still responsible for sediment losses and other options such as buffering could be preferable in some situations.

Deane Carson, who facilitates the Southland Advance Party, noted that fencing off waterways could sometimes exchange one problem for another. While it might reduce sediment and phosphorus losses, the gorse and broom that grew in the fenced-off areas, if left uncontrolled, could become a big source of nitrogen losses into waterways. "Some areas lose 50kg per hectare nitrogen per year from this."

Fiona Young, Environment Southland Sustainability Team, said it was important to plan fencing for environmental reasons in the context of the whole farm system. Works like sediment traps should be placed strategically to make the most of opportunities to "polish" the water leaving the property.

Deane Carson noted that sediment traps can be quite small. As long as the water movement through them is slow, they will do their job. "They don't need to be expensive. It might be just a couple of scoops with the digger, as long as they are cleaned out regularly."

Fiona Young said submissions on the Environment Southland proposed water and land plan had closed. Nearly 1,000 had been received, including a submission from the NZDFA. Once the report had come out there would be hearings from submitters by a panel, which will take up the latter half of 2017.

Stock exclusion rules for cattle were set for introduction in 2018 and for deer in 2020. Young said that, in hill country physiographic zones, only land with a slope of less than 16° would require stock exclusion. (She noted that the proposed rules could change once the hearings had finished.)

Where it wasn't possible to meet the stock exclusion deadlines it would be possible to apply for a consent. This would require a farm plan, which would allow a strategic timetable for fencing off the relevant areas. The plan would include some mapping and thinking about practices to minimise losses of nutrients, sediments/phosphorus, etc. At this stage no exclusion deadlines have been set for sheep, although some general conditions still have to be met for sheep farmers.

There are still decisions to be made about the consents. There is a $1200 deposit, but no final cost has been decided. Neither has the term of the consent. "We'll be helping people as much as possible to make the consent process run smoothly." Young said the plan covered wintering on crops in two specific areas:

1. Requirement for a buffer between cultivated areas and waterways.
2. Depending on land type (physiographic zone) and area, consent may be required.

"If you were wintering on, say, Old Mataura soils or on peat wetlands, on more than 20 hectares, or if you had intensive forage crops on more than 50 hectares on any of the other types such as the oxidising clays, you would need a consent." (For more on Old Mataura soils: http://bit.ly/2roD3sA)

Young said these requirements aren't planned to kick in after May 2018, so it is time to start thinking about consent when planning next winter's crops. "Do your homework."

Working out the slope

A smartphone app is all you need to quickly work out the degree of slope in a paddock. The Clinometer + Bubble Level app (for Apple or Android) lets you take quick readings 20 metres apart. Slopes expressed in degrees are usually more gentle than we would think. For example, the slope our group was lounging on during this presentation was a mere 9° when measured.

Deer as land developers

Stuart Farm manager, Mark Bolger, said deer had been invaluable when it came to farm development over the past 25 years. They had helped strip back the natural tussocks to make way for improved pastures, but in the process had probably been somewhat underfed. Nutrition is a much higher priority now.

One land attribute that even the deer can't help with is the rocky soils in some paddocks. Bolger said surface rocks are gathered up where possible in to help avoid damage to equipment when direct drilling crops like swedes. When that's not possible oversown seed is spun on and then heavy-rolled, thus avoiding cultivation or damage to seed drills.

Southland Advance Party lessons

Members of the Southland Advance Party shared some of their stories, showing plenty of progress has been made. Here are the highlights.

Richard Greer, Sunnyside

- Doubling the number of hinds on the self-feed silage using protective boards to keep their feet out of it has halved the

STOP PRESS: DINZ BOARD APPOINTMENTS

The Selection and Appointments Panel has appointed **Mark Harris** to the DINZ Board for a two-year term, to replace Andy Macfarlane on his retirement at the end of June. The SAP has also appointed **Kris Orange** for a term of three years, replacing Clive Jermy.

amount of wastage.
- Changing from breeding only to breeding and finishing has lifted gross margins by 54 percent over the whole farm and per hectare.
- Fodder beet has been the best option for feeding the finishers through winter but, as on other farms, they seem to hit the growth rate wall after about 60 days. They are keen to know how to extend the 60-day window – nothing tried has really worked yet.

Bruce Allan, Waimumu

- Feeding grain with an Advantage feeder in January gave only a small growth margin in the fawns.
- Mineral injection trial with split mob in autumn showed no advantage.
- Trying sub clover to help boost growth in the shoulder season.

Des Ford, Deer Improvement, Balfour

- Lifted fawning pasture covers to about 2500kgDM/ha to improve fawn survival, especially in R2s, and achieved a lift of about 3 percent over the entire herd. No negative pasture quality side effects to date.
- Trying to improve weaner growth using grain pre- and post-rut weaning, with high-quality red clover based pasture.

Simon Wright, Fairlight Station

- Wintering the lightest 120 weaners indoors and trying to optimise feed didn't produce big cost benefits but overall confirmed it brings the smallest animals up to the middle of the weight range while taking pressure off the main weaner mobs.
- Earlier weaning to bring fawning forward: Taking out the stag earlier (6 April) reduced the conception rate only 2 percent (96 percent down to 94 percent) but had the effect of cutting off the late tail end.
- This year the weaning/stag joining date has been split in the mixed age hinds – half in mid-February and the rest at the end of the month. Simon will see what impact if any this has on conception dates.

Richard Cook, Makarewa

- Runs a small, heavily stocked block that was suffering pasture damage.
- Purchased a neighbouring block and leased another, and expanded operation with encouragement of Advance Party.

Robert Legg, Montevue

- Applied nitrogen and sulphur onto 40 hectare hill block to boost spring production.
- Response was 15kg dry matter/1kg nitrogen, and +480kg dry matter/hectare (cost 20c/kgDM).
- Not enough stock to control feed, so quality declined.

A sight for sore feet

Mark Bolger said foot problems in young deer needed to be addressed as they sapped productivity. As a straightforward first step they are installing rubber matting in the yards (see photo). They are also looking to pay attention to the lanes and approaches to the sheds to reduce injuries and stress. That's more of a challenge, Bolger admitted. "It's not so easy to shift lanes or yards."

- Failed to boost weaning weights but hind condition at weaning was better and can now finish animals faster and at 2kg heavier.
- Now have fewer deer but increased sheep and use lambs to eat extra growth left by finishers.

Andy Dennis, Manapouri

- Changed from pre-rut to post-rut weaning and better feeding of hinds.
- Body condition of hinds improved by 0.5 and fawns put on an extra 20kg between February and April.
- Running some R2s on lucerne after new year gave them a 4kg advantage over grass-fed R2s and improved conception rates (98 percent versus 88 percent).

Rick Whyte/Ben Beadle, Landcorp Lynmore

- Finishes 3,000 weaners for other farms.
- Trialled three forage mixes for finishers: plantain/clover, grass/clover and lucerne.
- All performed OK, but grass fell away as the season progressed and plantain gave better quality throughout the season.
- To pay for itself the plantain needs to last several years, to pay for the eventual cost of regrassing.

Dave Nind, East Dome

- Ten percent of the farm is regrassed annually.
- Grass grub is a major challenge; also porina, Argentine stem weevil and clover root weevil.
- Seeking expertise via AgResearch to find economic solutions. ■

Canterbury environment award

by Mike Bradstock, *Deer Industry News* writer

A North Canterbury sheep, beef and deer operation owned by the Douglas-Clifford family has won the Canterbury Ballance Farm Environment Awards.

STONYHURST PARTNERSHIP, ENTERED into the awards by John, Peter and Charles Douglas-Clifford, is a 22,000 stock unit sheep, beef and deer breeding and finishing farm that extends from the coast at Motunau, inland to Greta Valley.

The property has a long history. Forebear Charles Clifford, who took up the original lease in 1850, was active in national politics and business.

Two of his fifth-generation descendants, brothers John and Peter Douglas-Clifford, have been farming Stonyhurst together for almost 40 years. John and Robyn Douglas-Clifford's eldest son Charles came home in 2012 after working in rural banking for six years and, with wife Erin, now controls the day-to-day operation.

Today, Stonyhurst is 2,950 hectares (2,461 effective) and carries mostly sheep and cattle. Five percent of stock units are deer, but they punch above their weight and integrate well with the overall operation, Charles Douglas-Clifford told *Deer Industry News*.

About 120 hectares is deer fenced in three separate units for breeding, growing replacement hinds and finishing. The herd comprises 400 mixed age breeding hinds and R2s, all red deer with some Eastern genetics recently added to provide hybrid vigour for early-season weight gains.

"We used to target summer/autumn slaughter but adding new genetics has enabled us to bring that forward to capture more of the fresh chilled market. It's about trying to maximise returns by being flexible. You only get one chance to sell your stock; sometimes a heavier animal is more profitable, but there is also an opportunity cost in keeping stock longer.

"We post-rut wean in May/June and the post-rut male weaners go by spring, after which the land can be used for finishing other stock. R2 cattle are used as required for pasture management on the replacement unit."

Drought has been a problem. Annual rainfall is traditionally 950mm, but in the past three years it has been about half that. They have met this challenge partly by moving away from an all-grass system. Pits of 15-year-old silage and good grain storage ability have helped. Fodder beet for weight gains over winter and as drought insurance has been recently trialled with great success. "Over winter, weaners have made 170–230g/day on fodder beet, so it's working pretty well," Douglas-Clifford said.

"We shift breaks and feed supplementary baleage twice a week. The deer transition and self-regulate very well on this feed regime. They have been simplest to manage and leading performers among all our stock classes. They have not dropped off in quality when feeding from June through to late August or September. This has helped us keep them off vulnerable pasture and maintain good grass covers through winter and spring."

Stock also receive supplemental barley that is grown on the farm and has the additional bonus of helping weed control.

Charles Douglas-Clifford: Deer integrate well with sheep and cattle.

The farm has large areas of protected native bush. The award judges described Stonyhurst as an aesthetically stunning farm where management decisions had been focused on the preservation and enhancement of natural resources alongside successful commercial farming.

Water courses are well protected to minimise wallowing, a problem that is also partly alleviated by a comprehensive stock water system. "We have looked into solutions to fenceline pacing, a particular problem in drought years. We are looking at upgrading the fences with electric outriggers and we aim to make sure supplementary feed is available to try and stop covers from getting so low that the deer want to look into the next paddock."

Nutrient budgeting using OVERSEER® has produced interesting results and provided lessons. The soil has good natural fertility and requires relatively little supplementation apart from lime to raise the pH so that nutrients and minerals already present become more available.

"Nutrient losses from the deer blocks are a bit higher than we expected, and we have learnt to be very careful with management of soil and runoff from winter crops, for example running only young stock on them to minimise pugging. Also, we realised that controlling the grazing direction by fencing breaks from the top down in each paddock would be beneficial. It means that runoff is largely re-absorbed by the rest of the crop that is further downhill. Lots of good ideas like this are obvious and have only to be implemented."

What about the future? "There will be constant changes like benefits in management and genetics. Farming will remain relatively the same but with more technology, management, improvements in animal welfare and stronger rural connections within the primary sector."

The Ballance award has not been the Douglas-Cliffords' only success this year: they also won the region's Hill Laboratories Harvest Award, Massey University Innovation Award and the Farm Stewardship Award in partnership with QEII National Trust and New Zealand Farm Environment Trust. ■

Venison features at NZ Chef's Table

by Alison Spencer, *Deer Industry News* writer

A well-attended event in Germany has piqued the interest of food writers and chefs in farm-raised New Zealand venison.

NEARLY 60 ATTENDED the Hamburg "New Zealand Chef's Table" function on 8 May, a collaboration between DINZ, NZ Trade & Enterprise and NZ Wine aiming to raise awareness of the great combination of New Zealand wine and venison. Guests included food writers from consumer and trade publications, wine publications and bloggers as well as chefs and sommeliers from local restaurants.

"We wanted to show venison beyond the usual cuts to encompass nose-to-tail cooking, which is of great interest in Europe," explains DINZ Venison Marketing Manager, Marianne Wilson.

The event kicked off with a carcass-boning demonstration showing the potential New Zealand venison has beyond traditional game-style cookery.

"The idea was to show the superb quality of New Zealand farmed deer, in good condition and conformation, illustrating how far wild shot deer is from New Zealand venison," she says.

Left: Simon Ellery showing how the venison leg can be broken down during the carcass demonstration.

The butchery demonstration was accompanied by commentary from DINZ contract chef Shannon Campbell and master German butcher, Simon Ellery, about New Zealand's methods of producing top-quality, grass-fed venison and its attributes. This was followed by a tasting opportunity.

"Shannon created a modern menu that included different cuisine styles and some wild-card cuts, such as liver and kidneys, to get media and chefs thinking of venison in new ways," she says.

Campbell prepared the tasting menu to showcase the versatility of New Zealand venison. Items included venison tatataki with soy mayo and lime sugar puff, BBQ steak with Thai aromatic salt, banana pudding and pumpkin, alongside kidney rillette with aubergine tahini crème and saffron goats' milk pudding and seared liver with Cointreau, pak choi and hoi sin sauce.

The dishes were perfectly paired with wines by NZ Wines sommelier, Andrew Connor, who explained why certain varietals were perfect matches for different dishes.

"Press, bloggers and chefs were particularly interested in the natural production methods and our animal welfare credentials," says Wilson, who adds that this area is getting increasing attention.

The event has had good feedback and there have been many enquiries for Wilson to follow up.

"We are looking forward to seeing the coverage generated from this event in the following months. If the concept proves successful, we will look to do it again in a new location," says Wilson. ■

Venison update

Production

- The national kill for the 12 months ending April 2017 was 288,832, down 17% year on year.
- Production for the 12 months ending April was 16,491 tonnes (CWE), down 14% year on year.
- The total number of hinds killed in the 12 months to April 2017 was 138,466, equating to 48% of the total kill and down 26% for the year to date.
- The kill in April was down 6% with production down 15% versus April 2016. Average weight per carcass was up year on year at 57.12kg versus 55.08kg at the same point in 2016.
- High rainfall creating good growing conditions and a greater proportion of stags in the kill have contributed to the higher weights.

Exports

- Total venison exports for the 12 months ending March 2017 are recorded as 12,716 tonnes, down 17% year on year, reflecting the low production levels.
- The value of these exports was $163 million, down 14%. The average FOB sales price per kg over the past 12 months was $12.84, up 5%.
- The United States is now the lead export market by volume, up 36% year on year. Volume increases were also seen for Canada, up 16% year on year.
- As previously reported, volumes are significantly down for the German market, with a 40% decrease posted for the 12 months ending April 2017.
- With the tight supply conditions, exporters are prioritising higher-value/long-term partners, and consequently the European commodity game trade is not able to access the same levels of product as it has done in the past.

Chilled exports

- Overall, the total volume and value of chilled exports decreased by 7%. However, chilled exports to the United States were up 23% by volume with 751 tonnes shipped, worth $16 million. Exports into Belgium and Canada also posted increases, up 5% and 26% respectively.
- These increases highlight the inroads exporters are making in creating and developing higher-value markets for venison throughout the year.
- Chilled exports made up 19% of total exports by volumes and 33% by value and the average FOB sales price per kg over the last 12 months was $22.50 – equal to the same period last year.

Schedule and market observations

- The published schedule throughout May climbed from $8.28/kg at the start of the month and finished at $8.52/kg, up 13% year on year (Figure 1).
- As reported in previous editions, the higher-than-usual prices are a result of a combination of factors: product shortages in market, the reduced kill (production is down 17% year on year) and firm demand out of North American and European markets driven by exporters' focus on market diversification and continued demand for premium grass-fed meat.
- Exporters report good demand across all markets for all products. There has been a considerable lift in lower-value items over the past months, due to growing demand from the US burger trade, along with the super-premium pet food market.
- In the week commencing 29 May the US dollar was trading at 0.70 cents to the NZ dollar and 0.62 cents to the euro, both down 4% year on year. The slightly weaker NZ dollar has also paid a role in the schedule increases seen over the past few months. Schedule prices at the level we are seeing at this point in the season, were last observed in the early 2000s, when the NZ dollar was trading at 0.41 cents US and 0.50 euros. ■

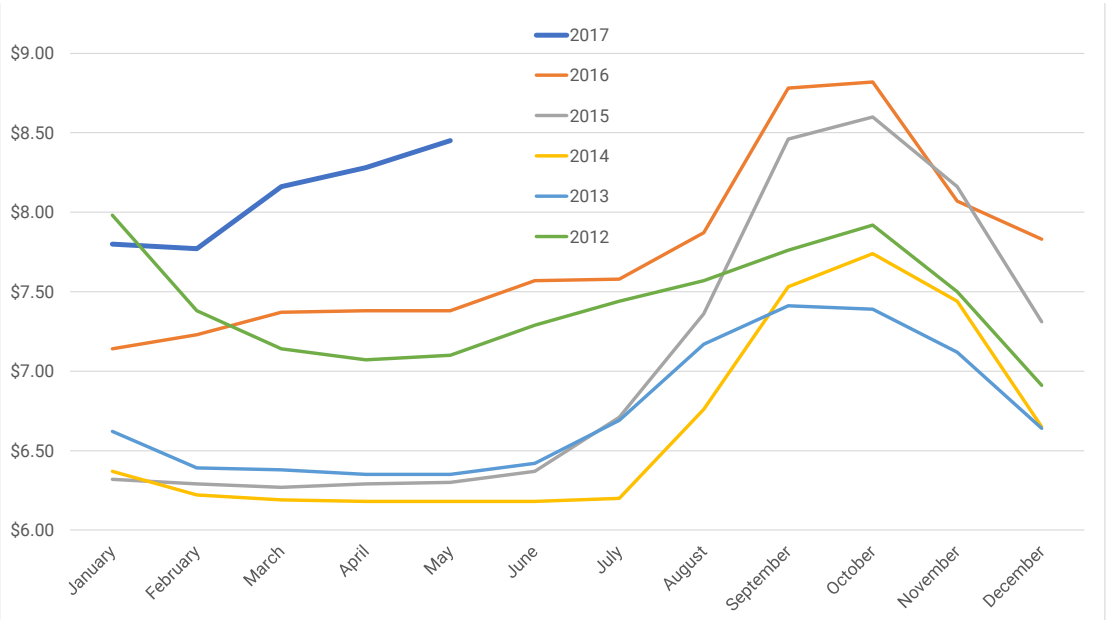

Figure 1: National published schedule: 2012–2017 AP Stag ($/kg gross)

Genetics leaders stepping aside

by Alison Spencer, *Deer Industry News* writer

Two industry leaders in deer genetics, central to the development of Deer Select into a sound genetic improvement system for the New Zealand deer industry, have recently stepped aside from direct involvement.

THE VALUABLE CONTRIBUTION from Jake Chardon and Tim Aitken needs to be acknowledged, says Deer Select Manager, Sharon McIntyre.

"Large gains in merit across a number of traits, increases in the accuracy and reliability of breeding values available to industry and a management structure involving breeders and commercial deer farmers have all benefited from their input," she says.

"Deer Improvement in particular was a generous contributor to the deer progeny test programme, including providing additional slaughter information."

Jake Chardon: Genetics knowledge applied

Dairy geneticist Jake Chardon applied knowledge from his Dutch homeland to the deer industry after moving to New Zealand in the late 1990s and adding deer to his new Waikato sheep farm.

Jake Chardon: Be willing to try new technology.

He was one of the founders of Deer Improvement, set up in 2004 as a successful experimental spin-off from the dairy industry's Livestock Improvement Corporation. Over the past seven to eight years, he has been part of the Deer Progeny Test (DPT) Committee, the Deer Select Reference Group and Deer Link.

According to McIntyre, Chardon has rigorously applied breeding principles and technologies to advance genetic gain in deer. "Their focus on accuracy of recording and encouragement of other breeders to do the same has had big benefits," she says.

He has provided a lot of information, including maternal carcass information to supplement the DPT, which has driven rapid rates of genetic gain. His cooperative approach also saw him providing semen from his stags to industry and other breeders. This has resulted in valuable connectedness between red herds, which helps support across-herd benchmarking, she says.

For Chardon, the time has come to move on and try new things – in his case, dairy sheep and goats.

"It's been an incredible and interesting journey for me, but I've had my go," he says, adding that his involvement in deer will continue through Deer Improvement.

He urges New Zealand deer farmers, especially the currently "scarce" young ones, to not be afraid to experiment. "Take advantage of new technology and try it on your own farms."

He praises the Advance Party and Passion2Profit programmes, which he says are on the right track, but will take a long time without people pitching in. He hopes deer farmers will be more progressive and more adventurous.

"There are opportunities out there."

Tim Aitken: More robust data

Tim Aitken, until recently co-owner with partner Lucy Robertshawe of The Steyning, a Central Hawke's Bay deer and beef farm, has "thoroughly enjoyed" his involvement in Deer Select over the past five years, as chair of the Deer Select Reference Group and also as DINZ board member.

Tim Aitken: Deer industry needs to have a conversation around meat genetics.

As chair, he realised there were issues around recording data. "It wasn't as robust as it could have been."

Hard work by a number of people, led by McIntyre, ensured farmers are now entering good accurate data. He is pleased that with more robust data, the industry can move forward and have a conversation around genetics, especially for meat.

"It's dangerous to concentrate on a single trait, W12," believes Aitken. "Eye muscle area, for example, directly correlates with how much meat is on the bone, but you also need to be aware of how it relates with other traits so you don't inadvertently affect others. There is also a need to look at a meat production index – what breeding values (BVs) we need to include and how much emphasis we place on each BV to achieve the ultimate carcass."

The couple's approach to deer farming earned them multiple awards, including being a finalist for the East Coast and winner of the Hawke's Bay Farm of the Year and the Farm Stewardship Awards in the 2016 Ballance Farm Environment Awards, the 2015 winner of the Partnership and Engagement Award in British retailer Waitrose's Farming Partnership Award and the Marks and Spencer Farming for the Future Award in 2012.

They reluctantly decided to sell The Steyning, having realised it was either "get bigger or get out". The venison-focused recording herd, which was also a Focus Farm, has produced sires for other First Light suppliers. Aitken had been recording herd data for the past two decades and has supplied data to Deer Select for the past seven to eight years. He is relieved now to be leaving the deer

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Honour for James Guild

by Alison Spencer, *Deer Industry News* writer

Deer industry veteran James Guild was honoured in the Queen's Birthday Honours for services to the deer industry spanning 40 years.

THE NEW MEMBER of the New Zealand Order of Merit (MNZM) is pleased to have had the recognition for his commitment to the industry, but is quick to give tribute to his wife, Anna.

"The reflected kudos extends especially to Anna, who ran the farm and family during my many extended absences on deer industry business over the years," Guild says.

The Guilds have farmed at High Peak Station near Darfield since 1973, a month before the worst winter storm in his memory blew into their lives, with blizzards killing half of their sheep and a quarter of the cattle.

They turned to the deer on their property, but after their early experience "financially, we were pretty much buggered".

After that, they always took a cautious approach. The property lent itself to breeding, rather than finishing.

"We adopted a policy of generating enough sales annually to cover whatever we had spent on building the deer herd. This meant that when difficult times came later we weren't over-exposed, as many others were."

Having first joined the New Zealand Deer Farmers' Association in 1977, Guild found himself chair of its Canterbury branch in 1982, rising to the DFA Council in 1985 and later inheriting the chair in 1988 following the death in office of Ian Spiers.

"It was a very stimulating time and exciting as a young farmer in my 20s and 30s to be among others of a similar age, all driving a novel industry forward and determined to keep venison out of the commodity trade."

His citation shows Guild moved on to become a director of the Game Industry Board and the Cervena Trust; he was also the inaugural chair of Provelco Co-op Ltd and president of the New Zealand Association of Game Estates. He has advised the Government on issues such as animal welfare and livestock tax, and was on the Game Animal Council Establishment Committee. He has represented the New Zealand deer industry at many events around the world, including at the World Deer Biology Conference in the United States.

As if that wasn't enough, he also chaired the organising committee of first World Deer Congress held in 1992, when several hundred deer farmers from around the world came to New Zealand.

"This came out of the biggest thump for the deer industry, getting over the livestock tax. We saw the possibility of deer farming becoming a global industry and wanted to show competitors who were looking for excuses to create trade barriers to New Zealand venison that New Zealand was doing things like processing and velvetting right."

Anna and James Guild.

Guild currently chairs the Molesworth Steering Committee and, at the time of writing, was waiting to hear about reappointment for a further term as chair of the Queen Elizabeth II National Trust (his second three-year term ends on 30 June and he is eligible for one more term).

All three of the Guild children – two sons and a daughter – now live at High Peak, with second son Hamish managing the deer herd, while elder son Simon manages the trophy hunting and tourism business.

"I take my instructions from them," says Guild, who retains his annual velvetting ticket and enjoys working with the family.

Three tonnes of velvet is now harvested each year and a new gravity-fed irrigation scheme covering 105 hectares has allowed the property more flexibility to move away from dependence on selling weaners.

While the industry is rejuvenating, Guild says breeders have borne the brunt of the bad times.

"Industry still needs to address the lack of consistent returns for breeders," he believes, adding that he is certain that the key to unlocking growth in the industry lies in making it more attractive for finishers to run female deer for venison.

- The "Resilient Farmer", Doug Avery, a sheep and beef farmer from Awatere, also received an MNZM for services to agriculture and mental health in the farming community. Avery gave a memorable presentation at the 2011 Deer Industry Conference in Timaru. ■

Leaders: continued

herd in good hands, having just sold it to fellow Hawke's Bay deer farmers, Richard and Emma Lawson.

"It would have been a shame to have lost such a well-recorded herd," he says, adding he is excited to continue to "keep a hand in" assisting the Lawsons.

He also recently stepped down as a First Light Venison director.

In the meantime, he will keep himself busy at Central Hawke's Bay District Council where he is a councillor, with a special interest in environmental matters and District Plan Change Six and as a board member for Horse of the Year. First though, he and Lucy are taking a six-month sabbatical, while deciding what to do next.

The deer industry is at a crossroads around compliance, whether that be environmental costs and regulation, health and safety, food safety or any of a raft of others, believes Aitken. He can see the day when farmers will need a resource consent to farm.

"We have to decide how we're going to farm." ■

Abortion occurrence and causes investigated

by Phil Stewart, *Deer Industry News* Editor

Losses through abortion could be costing the industry $2m a year and up to $5.5m. That is one of the conclusions of an epidemiological investigation at Massey into abortion in farmed red deer in New Zealand.

THE STUDY*, COMPLETED last year, was carried out by Massey Veterinary Science PhD candidate, Kandarp Patel. It was funded by DEEResearch, AgResearch, AGMARDT, MSD Animal Health and Massey University, with in-kind assistance from MPI (lab testing), Landcorp Farming Ltd, and a large number of farmers, vets and scanners.

Patel's study involved 85 deer farms and analysed abortion losses in 22,130 R2s and 36,223 mixed age (MA) hinds. Focusing on mid-gestation losses, abortions were recorded in 73 percent and 61 percent of the R2 and MA herds, respectively.

It showed limited evidence that disease other than Toxoplasma is a significant cause of abortion in deer. Results showed good nutrition and health, combined with effective grazing management, appear to be effective ways to reduce the risk of abortion losses.

In the herds where abortion losses were recorded, the mean abortion rate in R2 herds (3.9 percent) was significantly higher than for MA herds (2.2 percent). Notably, losses of up to 19.1 percent (R2 herds) and 9.1 percent (MA herds) were recorded in individual herds, and those losses were recorded for less than half of the duration of pregnancy, so whole-of-pregnancy losses might be higher.

Given New Zealand's overall reproductive efficiency in deer (fawns weaned/hinds mated) has averaged a relatively poor 75 percent in the past decade, the losses through abortion provide an unwelcome drag on this performance level.

While the study focused on mid-term abortions, Patel said a supplementary pilot study, along with observations of aborting foetuses at scanning, had shown early abortions (before the first scan) were also a factor. This means that low pregnancy rates recorded at the first scan could be partly attributable to early abortion, not just poor conception.

Disease is often blamed as a leading cause of abortion losses, but investigations during Patel's study showed that apart from *Toxoplasma gondii* (the protozoan parasite that causes toxoplasmosis), disease was not a significant factor.

Serology and/or PCR analysis was done for *T. gondii* as well as for the other main abortion suspects, *Leptospira* spp., *Neospora caninum*, bovine viral diarrhoea virus (BVDv) and cervid herpesvirus type-1 (CvHV-1).

About 8 percent of abortions, on average, in the R2 hinds in the study could be attributed to *T. gondii*, while MA hinds appeared to have acquired immunity to the parasite after exposure in the environment (the parasite is mainly spread through cat faeces). This means that on some farms, or in some years, Toxoplasma may be a serious cause of abortion. An important part of the research addressed repeatability of abortion within farm between years, finding that occurrence was not repeatable. This means that abortion one year was not a predictor of occurrence or rate the following year. This has implications for targeted control for agents such as Toxoplasma.

Data from the study raised the question about vaccination for R2 deer, as used in the sheep industry. While some work has been done on the vaccine, showing it might be effective in some situations, it is premature to make generalisations about its place in control of abortion in deer since questions around its effectiveness and use are very complex. Decisions need to be made on a case-by-case basis in consultation with a veterinarian.

Beyond that, there was no evidence that other diseases investigated – *Leptospira* spp., *N. caninum*, BVD or CvHV-1 – played a significant role in abortion losses. (Interestingly, one-in-eight deer showed antibodies to BVDv. While not related to abortion losses, it did suggest there could be persistently infected deer – a possibly significant issue in mixed enterprises involving cattle.)

While the control of particular diseases other than Toxoplasma didn't appear to offer an easy answer to reducing abortion losses, a handful of management factors were associated with abortion. "The risk factor analysis suggests that attention to good nutrition and health, and effective grazing management, reduces the risk of abortion," Patel wrote. Nitrate poisoning and fungi on supplementary feed, while not implicated in this study, are potential causes of abortion in deer as in other livestock.

* Professor Emeritus Peter Wilson was the main supervisor for the study. Co-supervisors included Geoff Asher (AgResearch), and Cord Heuer and Laryssa Howe (Massey). ■

Kandarp Patel.

Provelco's intern directorships

In an effort to ensure the producer owned co-operative is relevant and connected to the next generation of deer farmers, Provelco has introduced a director internship programme. Through his wide-ranging interests, **Hamish Clarke** will already be known to many in the industry. This article profiles Hamish and his thoughts on the velvet sector.

Your impressions of the velvet industry?

About a year ago I read an article on "Hype Cycles" which closely reflected the start-up story of the New Zealand deer industry. If I had to put the velvet industry on that graph, I would say that it has started up the "slope of enlightenment". The velvet industry is now maturing into another phase of its journey. Markets have recently been relatively stable (touch wood) compared with the volatility that my family experienced when I was younger.

However, with a reduction in volatility there will be a change in the type of opportunities available. There are still many opportunities within the farm gate, but the opportunities outside the farm gate are changing. The increased interest of pharmaceutical companies in the velvet industry will create stricter supply chain standards and the need for closer cooperation between farmers and marketers for traceability and product quality assurance. An example of this trend has already been seen, with the new velvet handling guidelines developed by NVSB as a result of the Chinese audit in November 2016. This creates the potential for longer-term investment strategies.

What areas of the industry interest you?

I'm very interested in all areas of the velvet industry, but if I had to choose, it's the people that are at the heart of it. Deer farmers, particularly velvet producers, are a special breed and many have innovated and overcome significant challenges during the industry downturns and cycles in order to remain successful.

Deer farming in general is bred on passion and I am fortunate to have been born into an industry of people who are passionate for deer and velvet. The industry is full of optimistic innovators (it's a matter of "how" rather than "if" it can be done). These traits are much less common in other New Zealand livestock industries and I am thankful to have been brought up around such a unique culture.

I am also interested in innovative ideas and strategies, looking outside the box and to other industries for ideas on how to take the New Zealand velvet industry forward with the resources it has. I'm personally interested in emerging markets such as the healthy functional food sector and in expanding on my Kellogg Rural Leadership Programme work to see how we can better utilise technologies to give product feedback to velvet farmers on how their product has performed.

Your thoughts on the co-operative model?

This model holds great potential within the New Zealand velvet industry, provided that its weaknesses can be overcome through innovative management and farmer support. A cooperative model enables clear and open market information for velvet producers, which benefits on-farm decision making. The model also reduces transaction costs within value chains, allowing for a more long-term and stable approach to be taken.

Overall, the cooperative model has worked extremely well for New Zealand dairy farmers and has created many small family fortunes. However, the velvet industry is a different challenge and, like any model, the cooperative has both strengths and weaknesses. I believe that, at this time, new-generation cooperative models (such as the version seen within the dairy industry) are the best fit for meeting the requirements of global healthy food market trends, which are beginning to influence the New Zealand velvet industry.

I'm very humbled by the opportunity to join the Provelco team. I feel fortunate to have the opportunity to learn from an experienced board and look forward to learning more about governance and the velvet industry during my time as an intern director of Provelco. I'm very excited about the future of the velvet industry and the opportunities that exist for Provelco and its shareholders. ■

Hamish is a 27-year-old, third generation velvet farmer, following his father Campbell and grandfather Brian. He is Farm Manager at Te Mara Farms near Otorohanga, but before this was studying at Lincoln University researching robotic milking farm systems. The farm is a mix of dairy, beef and deer, but the deer are Hamish's favourite part of the family farming operation. " I enjoy getting in the shed with the velvet stags," he says.

DEERresearch

ANNUAL REPORT
1 JULY 2015 – 30 JUNE 2016

From the Chairman

Just as deer farmers and processors have been encouraged to review their health and safety practices in the last couple of years, we've spent a lot of time in Board meetings doing the same for DEEResearch. Compared to what's involved in thinking about pastoral sector innovation, this might seem a strange highlight in my annual review. However, making sure our research providers have systems in place to keep their scientists and technicians safe and healthy is a really important part of overseeing the research system, much the same as everyone staying safe on farm or in plant.

The research year was significant for DEEResearch since results started to come out of the Deer Progeny Test ('DPT'). A major discovery was that we can reliably breed deer for increased loin yield and tenderness (things our customers want) without adversely affecting other useful traits, simply by scanning eye muscle area in the live animal. The DEERSelect meat module has been adjusted to reflect this, so the tools are in place to support herd improvement.

In setting our research programme we try to give effect to our 5-year science strategy, which looks to deliver a balance between providing solutions to self-contained opportunities or constraints and addressing broader or system-wide opportunities or constraints.

As requested by farmers, our investment in parasitology stepped up, with scientists working on developing a test for parasite resistance to drench and, for the first time in deer, assessing the doses needed to be effective in typical farming situations of different drench active ingredients. As we hoped, the results of this work have been taken up by teams looking to develop and register a deer-specific drench with a short meat withholding period.

The Johne's Disease Research Consortium, of which DEEResearch was a major investor, wound up at the end of the year after meeting all its objectives. The Consortium carefully examined every facet of the disease in deer that could be subject to management control and tested the efficacy of different forms of Jd control. Vets with an interest in Jd have been provided with high quality science to support their Jd management advice. We thank our appointee on the JDRC board, Mandy Bell, for vigorously representing the deer industry's interests.

It's been our aim these last few years to link scientists and science outputs better with DINZ, so if we've done our job, the DPT discovery I referred to earlier shouldn't come as a revelation – it should be last year's news that you picked up from a range of different places. Even so, as a Board we're still working hard on improving processes to not only make sure you hear about discoveries usable on farm, but to research the very things farmers and processors identify as issues or opportunities. Key to everything rolling smoothly is good communication from those we do the research for, so in developing our programmeswe have consulted closely with deer industry groups. We encourage you to tell us what you're interested in by making use of DINZ or NZDFA channels.

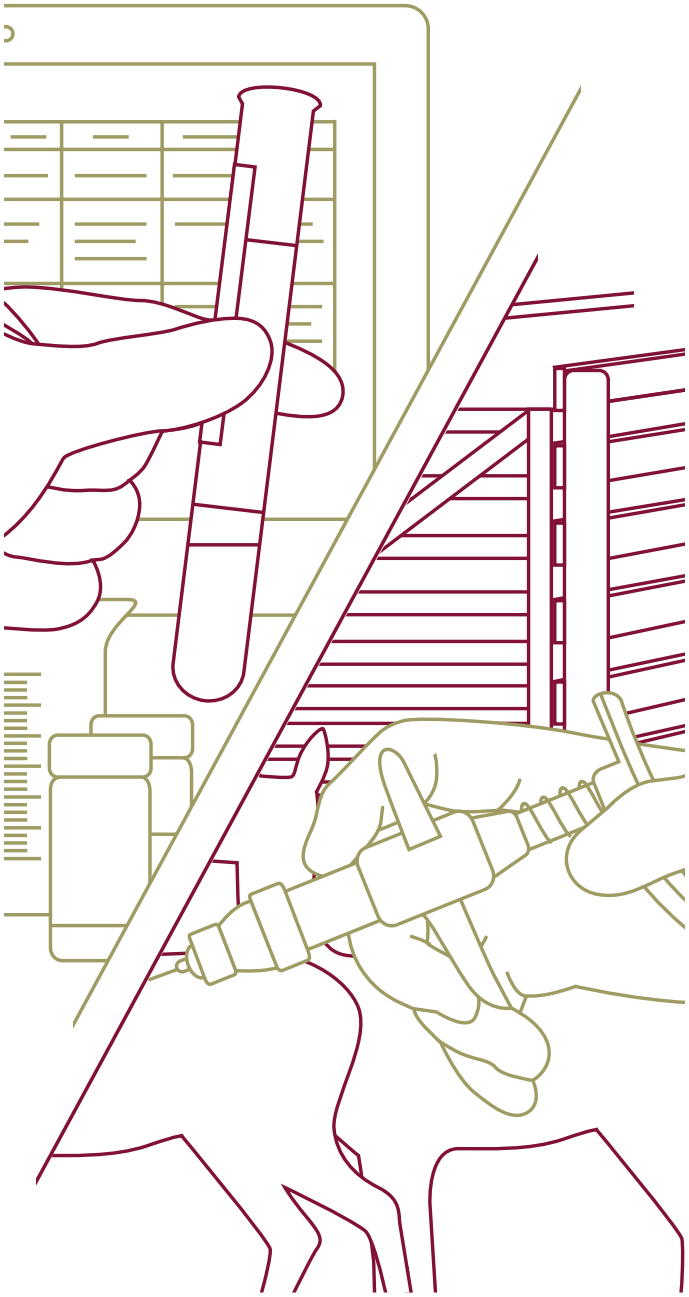
Lastly, there have been a couple of Board changes since year end. Mark O'Connor (no, not that Mark O'Connor) has replaced Rebecca Redmond as the AgResearch appointee and Dr Andy Greer of Lincoln University has replaced Prof. Tim Carpenter as the tertiary education representative. We thank Rebecca and Tim for their careful input. The depth and diverse range of skillsets on the Board makes for a variety of opinions and it's enjoyable marshalling them towards consensus on the research needed to make your jobs more productive, rewarding and respected by our communities.

Collier Isaacs

Accounts

This report includes an extract from the financial statements of DEEResearch Limited for the year ending 30 June 2016 for general information purposes only. A full set of audited financial statements is available on the DEEResearch Limited website (www.deeresearch.org.nz).

The complete set of Financial Statements were approved and signed on 3 November 2016 on behalf of the Board of Directors by D Coup, D Hailes and I Walker (Directors).



Research programme highlights

Hitting Targets for Deer Industry Profitability

2015/16 was the third year of "Hitting Targets", the largest project commissioned byDEEResearchby value. Hitting Targets is undertaken by AgResearch and its contractors, such as Massey University and Otago University.

This year saw DEEResearch make heavy investment into new genetics projects, designed to identify animals with heritable resilience to disease and stress generally which, through breeding decisions, could reduce costly and time-consuming animal health interventions on-farm.

DEEResearch also increased significantly its investment intodeer-specific genomics research. For a trait predictable by genomic (DNA) information, the generation of breeding values avoids reliance on farmers recording and entering data into DEERSelect. Genomic technologies, which are of greater accuracy than phenotype-based genetic predictions, can therefore simplify breeding decisions and increase the rate of herd improvement. DEEResearch's investments have so far enabled the use of genomics to identify an animal's breed composition and parentage, and work started on exploring whether genomic information could predict Johne's disease susceptibility.

The Deer Progeny Test project finished trait recording (except of maternal traits, which are being collected for development of a maternal and reproductive model in DEERSelect) and analysis of traits of priority industry interest was conducted. A huge matrix that assesses the heritability of each trait, its variation amongst the DPT animals and its relationship to each other trait was generated, so it is an exceedingly valuable industry resource. We can now identify the heritable traits that will achieve the largest and quickest improvements in our animals and their products without causing perverse effects.

Fieldwork was completed (and reported on shortly after year end) in a "dose titration" study to identify the relative efficacies in deer of different doses of oral drench from the main drench families. Until now, with only pour-on products registered for deer, when it comes to adjusting cattle or sheep doses of oral products for deer, veterinarians have relied on educated guesswork and the lack of comparative deer-specific field data has put off commercial companies from product development. These data should therefore help the deer industry in its push for new tools famers can use to combat parasites affecting the lungs and the abomasa and which are difficult for parasites to develop resistance to. Mindful of keeping options open in this space, proof-of-concept for a mini-bolus drench delivery system was established and DEEResearch approved on-going research to engineer a mini-bolus and test its efficacy in deer.

Other projects

Johne's Disease

2015/16 was the last year of the Johne's Disease Research Partnership ('JDRC'), of which DEEResearch was a founder member. JDRC closed its doors after successfully meeting all its objectives. In its last year, deer-specific deliverables from JDRC were:

- an analysis of the performance of two commercially available JD diagnosic tests;
- case studies of different disease management techniques;
- a diagnostics workshop for Johne's Consultancy Network members (veterinarians); and
- the sequencing of more than 2000 DNA samples with known JD phenotypes for the purpose of identifying markers for JD susceptibility and assessing its heritability (DEEResearch took up this work in 2016/17).

Climate change

The Pastoral Greenhouse Gas Research Consortium ('PGGRC') made headway in several areas as summarised below. It will be producing and disseminating factsheets to assist farmers on practical ways to reduce greenhouse gas ('GHG') emissions on-farm.

Genetics

Information on the heritability of low-methane production in sheep was strong enough to encourage PGGRC to commence studies in the current year into deer. PGGRC found sufficent heritability and variation in the methane-producing capacity of sheep to support selection for low methane producers without perverse effects, and the physiological basis of the variation was discovered.

Feeding

While choosing low GHG-producing forages will have only a small impact on ruminant GHG emissions, since forage crops make up a small amount of the diet, knowledge on the methane-producing capacity of specific forages such as fodder beet was ascertained.

Vaccines

Ruminants can be stimulated to produce antibodies active against methane-producing bacteria, potentially in sufficient quantities to affect methane production.

Inhibitors

Substances that inhibit methane produced in the rumen have been identified and have progressed to animal trials; the best substances could reduce ruminant methane emissions by up to 30%.

Directors

As at 30 June 2016 the Board of DEEResearch Ltd. comprised:

Collier Isaacs (independent Chairperson appointed by the other directors)
Tim Carpenter (Tertiary Education Institutions) (**Andrew Greer** from 4 January 2017)
Dan Coup (Deer Industry New Zealand)
Glyn Francis (AgResearch)
Danny Hailes (Venison Processors, Exporters and Marketers)
Rebecca Redmond (AgResearch) (previously **Tom Richardson**) (**Mark O'Connor** from 21 March 2017)
Ian Walker (Deer Industry New Zealand)

TABLE 1

Summary of DEEResearch's 2015/16 audited accounts

DEEResearch Limited

SUMMARY STATEMENT OF COMPREHENSIVE REVENUE AND EXPENSE

For the year ending 30 June 2016

	2016 $,000	2015 $,000
Total Revenue	**1,998**	**2,069**
Less Expenditure		
Research Expenditure	2,036	2,075
Administration Expenditure	63	52
Total Expenditure	**2,099**	**2,127**
Total Comprehensive Revenue and Expenses Before Taxation and Interests in Joint Ventures	**(101)**	**(58)**
Change in Proportionate Share in Consortium Net Assets	3	29
Impairment of Proportionate Share in Pastoral Genomics on Cessation of Funding	-	(18)
Total Comprehensive Revenue and Expenses Before Taxation	**(98)**	**(47)**
Taxation	**-**	**-**
Total Comprehensive Revenue and Expenses After Taxation	**(98)**	**(47)**

SUMMARY STATEMENT OF CHANGES IN EQUITY

For the year ending 30 June 2016

	2016 $,000	2015 $,000
Opening Equity	**122**	**169**
Net Result After Taxation	(98)	(47)
Closing Equity	**24**	**122**

SUMMARY STATEMENT OF FINANCIAL POSITION

For the year ending 30 June 2016

	2016 $,000	2015 $,000
Share Capital	0	0
Retained Earnings	24	122
Accumulated Funds	**24**	**122**
Represented by:		
Current Assets	351	415
Current Liabilities	327	293
Net Assets	**24**	**122**

SUMMARY STATEMENT OF CASH FLOWS

For the year ending 30 June 2016

	2016 $,000	2015 $,000
Net Cash Inflow from Operating Activities	(37)	(56)
Cashflows from Investing Activities	-	-
Cashflows from Financing Activities	-	-
Net increase in cash and cash equivalents	**(37)**	**(56)**

Notes to summary financial statements

The specific disclosures included in this summary financial report have been extracted from the full financial report which was authorised for issue after audit on 30 November 2016.

The financial statements have been prepared in accordance with Tier 2 PBE accounting standards. The full financial statements have been audited and an unmodified audit opinion has been issued. These summary financial statements comply with PBE FRS 43. Figures are in New Zealand dollars. All summary financial information has been rounded to the nearest thousand dollars.

The summary financial report cannot be expected to provide as complete an understanding as provided by the full financial report of the Company.

If you require a full set of accounts, please contact Catharine Sayer at Deer Industry New Zealand and we will forward a copy to you (catharine.sayer@deernz.org; 04 471 6116).

TABLE 2

Summary of DEEResearch projects in 2015/16

INVESTMENT TYPE	PROJECT'S SHORT TITLE	FUNDING P.A. ($K)				CONTINUING IN 2016/17
		Period of Project	Total	DINZ Funding	AgR	
Pan-sector consortia	**Methane mitigation** *through Pastoral Greenhouse Gas Research Consortium*	2002 - 2019	5,210	35	800	Yes
	Johne's Disease *through Johne's Disease Research Consortium*	2008- 2016	- [1]	-	-	No
Industry-led productivity	**Hitting Targets**	2013-2018	1,878[2]	446	1,333	Yes
Total			**7,051**	**481**	**2,133**	

[1] Work done using prior accumulated funding
[2] Includes $100K from Landcorp Farming Ltd

TABLE 3

Hitting Targets sub-projects in 2015/16

THEME	SUB-PROJECT TITLE	FINANCIAL YEAR IN WHICH COMPLETION ANTICIPATED	ACHIEVEMENTS BY YEAR END
Efficient land use	**1.3: Focus on Farming**	2017	Scientist support provided to range of deer industry events written media
Feeding	**2.1: Over-Wintering Hinds on Swede**	2017	Fieldwork underway on two farms
Animal health	**3.3: Anthelmintic Resistance in Farmed Deer (Assay)**	2016	Commercial participants recruited and fieldwork underay
	3.5: Anthelmintic Dose Efficacy Against Ostertagia	2016	Fieldwork completed; all data collected ready for analysis
	3.6: Effective Anthelmintic for Deer	2016	Fieldwork completed; all data collected ready for analysis; farmer support for mini-bolus-type product being canvassed and pathway to market being investigated.
	3.7: Does Carla Influence Parasitism in Deer?	2018	Fieldwork underway
Genetics	**4.1 Deer Progeny Test**	2018	Analysis and reporting in relation to many traits of interest completed. Annual programme of fieldwork for maternal traits complete.
	4.2: DEERSelect	2018	Advances made on development of new meat module, reproductive trait module and recommendations made on trait recording practices to improve breeding value accuracy.

THEME	SUB-PROJECT TITLE	FINANCIAL YEAR IN WHICH COMPLETION ANTICIPATED	ACHIEVEMENTS BY YEAR END
	4.4: Deerlink	2021	Annual programme of fieldwork complete and data uploaded to DEERSelect
	4.6: CT Scanning of Carcass Traits	2018	Fieldwork complete and data collected ready for analysis
	4.7: Tomorrow's Deer: Genetics for the Future	2020	Fieldwork underway
	4.8: Genotyping by Sequencing & Genomic Prediction	2018	Determined that deer with parentage assigned by reference to microsatellites need to be re-genotyped by GBS. Other fieldwork underway
	4.9: Genomic Solutions for Health and Wellbeing	2018	Fieldwork underway
	4.10: Seasonal Growth Pathways	2018	Project planning completed
Environment (water quality)	**7.3: Environment Focus Farm**	2018	Land and Environment Plan made for the Invermay farm and implementation commenced. Communications with deer farmers on Invermay's environmental improvements made through deer industry written media and a field day

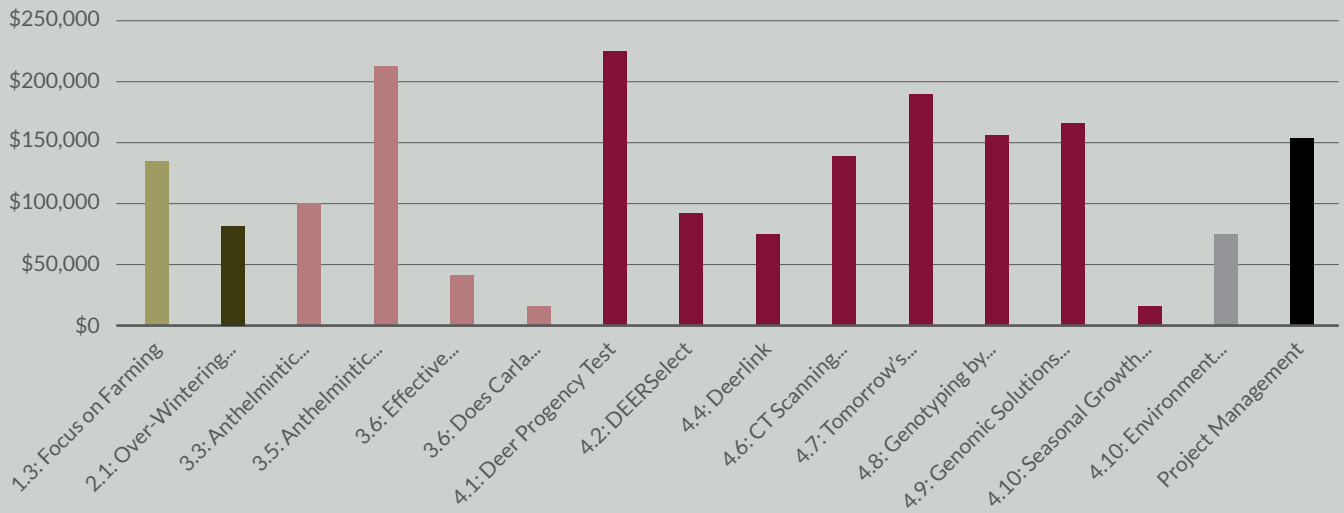
Full sub-project descriptions are available on any sub-project of interest, from DINZ's Science and Policy Manager, Catharine Sayer , on request.

TABLE 4

Hitting Targets sub-projects in 2016/17 **(new item in bold)**

THEME	SUB-PROJECT TITLE
Efficient land use	1.3: Focus on Farming
Feeding	2.1: Over-Wintering Hinds on Swede **2.5: The relationship between behaviour, stress and productivity in deer**
Animal health	3.3: Anthelmintic Resistance in Farmed Deer (Assay) 3.5: Anthelmintic Dose Efficacy Against Ostertagia 3.6: Effective Anthelmintic for Deer 3.7: Does Carla Influence Parasitism in Deer?
Genetics	4.1 Deer Progeny Test 4.2: DEERSelect 4.4: Deerlink 4.6: CT Scanning of Carcass Traits 4.7: Tomorrow's Deer: Genetics for the Future 4.8: Genotyping by Sequencing & Genomic Prediction 4.9: Genomic Solutions for Health and Wellbeing 4.10: Seasonal Growth Pathways
Environment (water quality)	7.3: Environment Focus Farm

Total investment into Hitting Targets in 2015/16 by sub-project



DEEResearch investment by research theme 2015/16

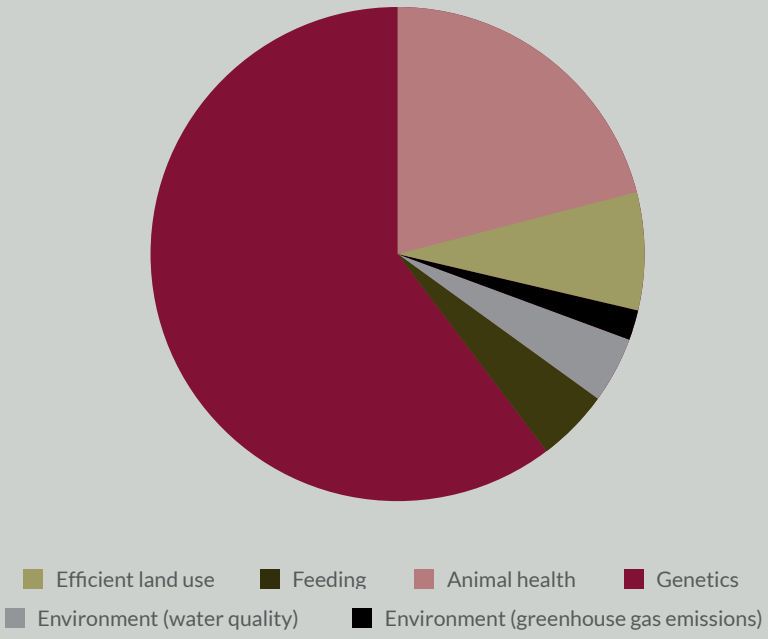


Photo award winners

Congratulations to our winners in this year's MSD Animal Health Photographic Awards, which were announced at the Deer Industry Conference Awards dinner by *Deer Industry News* Editor and judging coordinator, **Phil Stewart**.

PHIL WAS JOINED on the judging panel for this year's competition by Sam Higgins of MSD Animal Health and professional photographer Lindsay Keats.

We had a good range of entries this year. Our judges commented that whatever camera you are using – cellphone or a top-end model – remember to keep the lens clean. (Some entries this year were affected by "lens flare".)

First place and $500 cash went to **Denise Pawsey** with her outstanding photo of a fallow buck, entitled "Were you talking to me?"

Second prize of $150 was won by **Demi Lawrence** with "Follow me, boys".

Third place and $100 go to **Angie McIntyre** with "Christmas kiss".

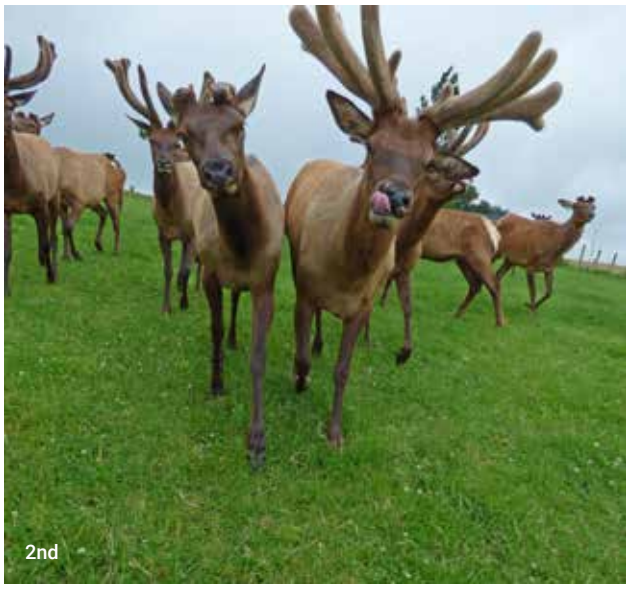
People's choice award of $100 and a wine pack went to **Angie McIntyre** with "Dreams come a size too big".

All place-getters also receive a framed print of their entry.

Four entrants this year received honourable mentions as Highly Commended: **Glenys Travers** ("The perfect mum"), **Felicia Bennett** ("Give us a kiss, deer"), **Annette Marr** ("Deer at sunset") and **Tony Cochrane** ("The girls' back paddock").

Our thanks to **MSD Animal Health** for their continuing support, our judges and of course our entrants. Phil Stewart says the competition will be revamped next year. Entrants will no longer required to send in a print of their entries, and instead just the high-resolution digital file. Entries will be displayed on a large monitor at the conference and online. ■


1st


2nd


People's choice


3rd