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Nassella, the scourge of **North Canterbury**



Thave grown up with **I** nassella tussock. On my family farm in coastal North Canterbury it was a pain in the backside.

Crews of Fijians used to prowl around the hills and coastal cliffs back in the 1960's and 1970's grubbing out the tussocks. They were employed by the North Canterbury Nassella Tussock Board but at one stage they stopped coming. I guess it was funding, or a change of government or a plan change like the rabbit board.

Anyway, once the Fijian guys were gone, it was my turn, as an 18 year old working for my dad my first year out of high school. I marched up and down the sea



Ecan biosecurity officers will spend most of November inspecting more than 200 properties in Hurunui and Kaikoura to identify nassella tussock. PHOTO: SUPPLIED

cliffs and hillsides grubbing away – it took me weeks to cover the 500 ha.

I later heard this story. My dad (who would be 99 now if he were still alive) was too young to join the army aka World War II by a year or two so he joined the Home Guard. One day the Home Guard received crate loads of rifles (from South

America) and went out into the Waipara riverbed to try them out. The new rifles were packed in the crates in a bunch of straw which turned out to be nassella tussock. The guys chucked this out into the riverbed as they were unloading the arms.

The straw blew away in the ever-prevalent North Canterbury nor' west wind and the rest was history. Nassella spread like wide fire. Hence North Canterbury's ongoing struggle with nassella tussock.

Environment Canterbury (Ecan) biosecurity officers will spend most of November inspecting more than 200 properties in the Hurunui and Kaikoura districts to identify

If you think you have a problem with this pest get in touch with them- this is a

To sustainably manage nassella throughout the North Canterbury region, land occupiers must annually search their land to identify and eliminate plants.

It's an important job as mature plants can produce up to 100,000 seeds. Seeds can then be dispersed onto neighbouring land by wind, water, stock, clothing and machinery. Do you want this on your neighbour?

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D-Day now looming for farmers' winter grazing consents

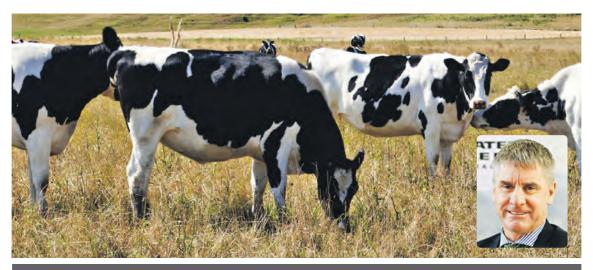


Farmers are at risk of breaking the law as the Government's winter grazing regime becomes increasingly confusing and planting for winter crops needs to take place, says Federated Farmers national board spokesperson and Mid Canterbury farmer Colin Hurst.

D-Day looms for farmers to have consents in place, warned Federated Farmers, Beef + Lamb New Zealand (B+LNZ) and DairyNZ.

The Government had been slow to implement freshwater farm plans, forcing farmers into an expensive consent process, while councils nationwide were struggling with the consenting burden.

"We've been told by the



Colin Hurst: The Government hasn't delivered a farm plan pathway as promised.

PHOTO: SUPPLIED

Ministry for the Environment, Ministry for Primary Industries, and various regional councils that 'it's ok' and nothing will happen if farmers get planting, even though they'd be at risk of breaking the law," said Hurst.

He said Federated Farmers, B+LNZ and DairyNZ anticipated this outcome and even warned the Government. "The Government hasn't delivered a farm plan pathway as promised and they can't even tell us when it will be ready," Hurst said.

"Regional councils are trying, but they are overworked, just like farmers. It's been estimated that up to 10,000 farmers will need to apply for a resource consent without delay, which will waste a lot of time and money. "Both councils and the Government have recognised that farmers have improved winter grazing practice, but the Government hasn't delivered on its promise to develop a farm plan pathway."

The current rules require farmers who carry out winter grazing – and don't meet a range of permitted activity criteria – to either have a certified Freshwater Farm Plan or to apply for a resource consent from November 1, 2022. However, with the development of Freshwater Farm Plans being delayed, thousands of farmers must now apply for a consent.

Federated Farmers, DairyNZ and B+LNZ wrote to Minister David Parker in August calling for winter grazing rules to be put on hold until November 2023, as the Government had not yet implemented crucial elements of the new framework. There had been no response. A second letter was sent to Minister Parker on September 22, which also included Prime Minister Jacinda Ardern.

Hurst said some councils were advising farmers not to apply for a resource consent, even if the law required it.

"In the view of Federated Farmers, this is placing a lot of risk on farmers. If things go wrong on the farm and council action is taken, a farmer will be in a far worse position than if they had a resource consent," Hurst said.





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Arable industry overshadowed by dairy but takes it on the chin

All ducks must be in align to be a successful arable farmer, plus a fair bit of luck.



There is an art and a fair bit of luck to growing arable crops. The water levels, the soils, the temperatures must be optimum. It must rain at the right time, the sun must shine at the right time, and it must all happen at the right time.

"Then it's, do I irrigate harder or hold back? Is the crop bulky enough? Will the bees pollinate?" South Canterbury farmer Guy Wigley says of the ordeal of closing in on harvest time.

"There was a harvest of several years ago when five inches of rain (127mm) and then a further three inches of rain (90mm) decimated my barley crop."

Wigley is a second generation mixed cropping farmer from Waimate and a past Federated Farmers arable group chairman.

"Arable is essential to our agricultural mix and a cornerstone industry. We supply grass seed to the pastoral sector, underpin the feed and grain industry and supply a competitive product to imported grain."

He says this of an industry that's often overshadowed

by the dairy, sheep, and beef sectors.

The industry is undoubtedly small

There are only 2700 Kiwi farmers on 131,000 hectares of arable farmland that are growing cereal, grains, pulses, maize, and specialised seed crops for export and the domestic markets. They contribute \$1 billion to the economy each year, a disproportionate amount.

Crops are grown from the tip of the North Island down to Southland with maize being dominant in the north, and cereal grains (wheat, barley) and seeds in the south.

Our arable growers are not internationally competitive, Wigley says. Domestic production of most arable crops is tiny by global standards. In 2013 our wheat production was less than 0.07 per cent of total world production.

"New Zealand does not even produce sufficient cereal tonnage to meet its own requirements, consequently imports of milling wheat and feed grains occur every year, mostly from Australia."

The reasons for this include small-scale production and high internal transport costs. For example, an average Australian grower plants about 500ha in wheat whereas a Kiwi grower plants about 100ha. The cost of transporting grain from Canterbury to mills in Auckland is more than the



Colin Hurst: Arable farming is relatively light on nitrate leaching because nitrogen fertiliser is spread in an even layer on the paddock.

PHOTOS: SUPPLIED

price of shipping grain from Sydney, and similar to the cost of transporting grain from the east coast of the United States to Auckland's mills.

So it's small, but still vital for our future.

Consider these facts.

It's estimated an additional billion tonnes of cereal a year will be needed to feed a population of nine billion people in 2050. This doesn't include the grain to feed the animals that will provide the additional 200 million tonnes of meat. To make this possible arable land is expected to expand by around 70 million hectares, and farming will become more intensive and irrigated.

New crops that use water efficiently and improve crop yields are vital in meeting these demands. New cultivars must be nutritious and meet the requirements of the food industry regarding health, convenience and good processing qualities.

Brian Leadley farms 430ha south of Rakaia. Just under half the land is leased long-term from a neighbour, but the two blocks are run as one cropping and lamb finishing operation.

The property is spray irrigated, and it is this that Leadley says "has kicked us heavily into arable".

Leadley crops the whole farm each year, growing a range of small seeds, processed vegetables and cereal crops. Over autumn, winter and spring he buys lambs for finishing using feed grown in grass and clover paddocks.

Like many modern arable operators, he farms a diverse range of crops.



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"As we plant one crop we are already planning for the next and consider things such as paddock history, fertility and pest and weed issues.

"For these reasons, the crop rotation plan can be long and complex, and ours usually ends up with a lot of 'twink' on it by the time we finish."

Grower planning is done at the time when there are no market indicators for demand for the product, let alone the return value.

"Our planning time is up to 24 months away from harvest," Leadley says.

"As growers, we always look at ways of driving efficiency and ways to manage production costs while keeping up our yields. International influence makes it difficult to keep up a good return on the product."

Leadley says this remains an impetus for farmers looking at options when planning their crop plantings.

"For instance, the choice between feed wheat and milling wheat has always been there, and with the demand from the dairy sector for stock feed, that's likely to stay, "he says.

As a past member of the Federated Farmers arable industry group executive, Leadley is also chairman of United Wheatgrowers, which lobbies in support of agriculture and arable issues. The roles are closely linked.



There are only 2700 Kiwi farmers on 131,000 hectares of arable farmland that are growing cereal, grains, pulses, maize and specialised seed crops for export and the domestic markets.

Industry structures are well developed to push growth further, but he's not confident that's enough for future sustainability.

"We need better communication between the grower and the marketplace.

"We are producing highquality world record crops yet are still importing a large percentage of our domestic grain needs as New Zealand competes with subsidised wheat on an uneven global playing field.

"I'm unsure how long producers, processors and manufacturers can continue to absorb this." James Millner of the Institute of Agriculture and Environment, Massey University says water could become a significant issue for the arable industry in the future.

"Arable farmers may need to compete with other producers for tradeable water rights, and successful bids could depend on the profitability of arable compared with other land use options."

The conversion of arable farms to dairy is another threat, Millner says.

"The large-scale irrigation schemes have encouraged dairy conversions, especially in Canterbury.

"It's an ongoing issue.
Farmers are attracted to dairy
by a mixture of improved
cash flow, no harvest risk, and
increasing profitability. The loss
of arable farms could lead to a
loss of crucial infrastructure,
services and economies of
scale."

On the other hand, dairy conversions give opportunities for arable farmers to provide grazing for dairy cows, he says. Supplements such as grain and straw and pasture for silage can also be sold to dairy farmers.

Millner says biosecurity is a constant worry for arable farmers and vegetable growers in particular. Each crop has its own biological threats with the potential to reduce production and economic returns significantly. Psa (kiwifruit disease) is an excellent example of the damage a new biological agent can have, he says.

Canterbury has limits on the amount of nitrogen lost from farming systems, and these are written into regional plans. This is proving controversial because substantial reductions in nitrogen losses are required which could hinder arable productivity, Milner says.

South Canterbury farmer Colin Hurst (chairman of Federated Farmers Arable Industry Group) says arable farming is relatively light on nitrate leaching because nitrogen fertiliser is spread in an even layer on the paddock. There is no overloading of nitrates in any one spot and nitrogen is not applied during the autumn, the period of highest leaching.

"We are environmentally pretty benign," he says.

"We put nitrogen on as the plant starts to grow and it takes it up. This leaves tiny amounts of nitrogen in the soil.

"In 2000 we were growing a lot of milling wheat, and the price must have come down because we ended up selling it for feed. That wasn't sustainable.

Continued on P7





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From P5

"At the time an English consultant came out and showed us how to grow wheat using the English farming system. They only put nitrogen on the crop when it is required.

"We doubled our yield by using the right variety and the right technique. Ten tonnes per hectare was unheard of but now it's quite achievable, and we are looking for the next big thing.

Hurst farms mainly crop and seed, with a few sheep and dairy grazers

"We have 400ha in wheat and barley and specialised seed."

He sells two-thirds of his harvest on a forward contract. Most farmers will contract a portion forward to poultry or dairy industries or to a merchant, he says. He puts some with a free market merchant who will try to place it. At the point of harvest, grain is discounted to a degree because farmers will want to move it on.

"We are at the whim of the markets," he says

Hurst took on dairy support about 25 years ago, integrating livestock into the crop rotation as high-value crops can't be grown on the paddock repeatedly.

"For this reason, the earnings of a particular piece of land can fluctuate from \$7000 down to \$2000 per hectare."

Eight years ago was one of the most significant grossing incomes for arable farmers but the year before that they got nothing, Hurst says.

"Even so we got well over what a dairy farmer would get per hectare and this before the dairy trade fell out of bed. In that one year, I would have made more out of carrot seed per hectare than the dairy farmers."

It's good news for the arable sector for the coming harvest after some tough years. Seasonal prospects are up, markets are stronger, and farmers are pretty sure returns will be positive for some time yet.

"Generally we are looking at some sound pricing over the \$400 per tonne for all grain type. This is where we need to be to have a good return. Compare this with four years ago when we were barely clearing \$300 tonne," Leadley

Leadley thinks the quality message behind New Zealand grains is spreading not only among consumers but also among dairy farmers sourcing grain for feed.

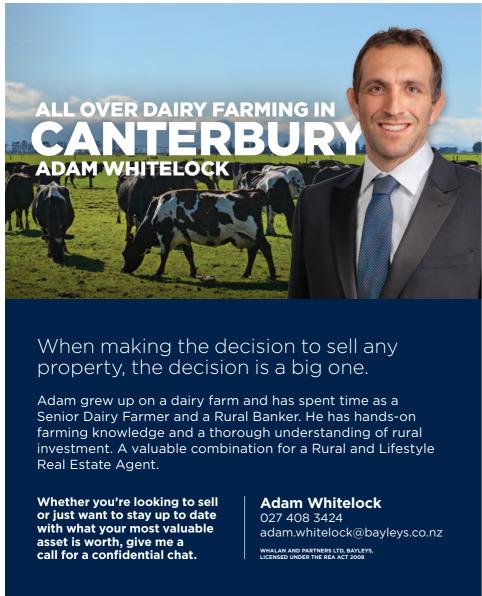
"The arable industry is much more positive than in years gone by, with stronger prices, good demand for our products, and some positive planting and climatic conditions all pointing towards a good harvest next season," Leadley says.



New Zealand arable farmers contribute \$1 billion to the national economy, a disproportionate amount.



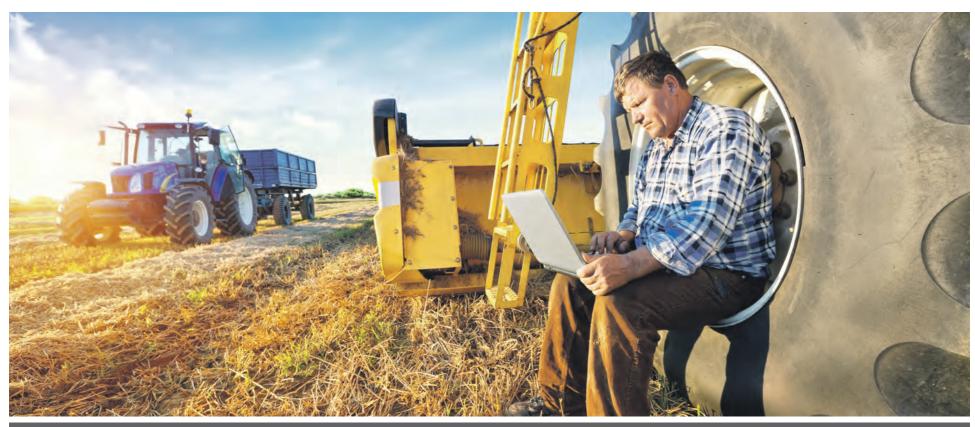
New Zealand does not even produce sufficient cereal tonnage to meet its own requirements, consequently imports of milling wheat and feed grains occur every year, mostly from Australia.





ALTOGETHER BETTER





Around 40 percent of all dairy milking sheds in the district will reach the end of their economic life by 2040.

Perfect storm coming for farmers

The convergence of water use consent renewals and dairy shed renewals may be a catalyst for land use change in mid-Canterbury around the early 2040s, says Nick Giera, Mid Canterbury dairy chairman for Federated Farmers.

Add into this climate change, and

anything could happen.

A report by Our Land and Water (Toitu te Whenua, Toiora te Wai) released earlier this month found that around 40 per cent of all dairy milking sheds in Mid Canterbury were built between 2007 and 2015, according to resource consents.

Using the IRD calculation of a 33.3year economic life for a dairy shed, those 230 sheds would reach the end of their economic life between 2040 and 2048. This meant nearly half of all dairy sheds in the region were likely to need replacing during that

Add to this the researchers found that between 2030 and 2040, 78 per cent of all water use consents in the district would expire. The area of land involved in this process would, however, be even greater, as the water consents of all three irrigation companies in the district also fall due in this period.

And then there were the vagaries of climate change predictions, which were "notoriously unpredictable" according to Giera.

Could these factors create a perfect storm for land use change?

Over the last 20 years, irrigation has transformed the Ashburton District away from its traditional use as a sheep and grain growing region.

"For owner-operators and family farms making any decision to change will involve looking at return on investment, but they'll also consider



Nick Giera, Mid Canterbury dairy chairman for Federated Farmers: any decision to change will involve looking at return on investment.

their own personal stage of their farming career, succession plans, and asset value considerations of alternative land uses," Giera said.

"At the moment there are not many land uses (with the required supporting infrastructure) that compete with dairy on a return-oninvestment basis, but that may change in the future.



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Electric fencing technology crucial



A new electric fencing system has allowed a Mid Canterbury farm to run a sharp rotational grazing system usually only seen on New Zealand dairy farms, says Glenview farm manager Jack Dwyer.

Across 475 hectares of some of New Zealand's most scenic farmland in mid-Canterbury, Glenview, a beef farming system owned by former Anzco Foods founder Sir Graeme Harrison has put its first foot forward.

The most recent addition was Glenview, where the

farm had been completely overhauled with the new permanent electric fencing system.

"It is an intensive operation, so we want to make it pay for itself," said Dwyer. "To help us manage our animals effectively, we tore out almost all the fencing and re-fenced more than 60kms of the property using an electric fencing solution, including powering it up with

energizers."

Each paddock was about eight hectares in size, divided in the middle with a two-wire fence. This allowed sheep to go underneath, but cattle to be effectively managed.

"This setup means we can run short sharp rotational grazing where we get mobs of 40 to 50 cattle doing a 24-day rotation in a one eight-hectare paddock if the growth is adequate," said Dwver.

Across all the farms, the operation runs a total of 2,700 perendale ewes, with plans to lift that number to about 4000 over the next couple of years. It calved 500 angus cows this season and last season raised 240 angus steers for Five Star Beef and finished 830 friesian bulls, and 4000 lambs, with the hope to see those numbers rise in the next few seasons.



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Shearing should be easier than this

Thank you for your article on shearers in the Rural Guardian October. I have put some research into shearing or perhaps more accurately, making shearing easier.

I worked on sheep with no wool on the head, legs, belly and breech and that is proven to decrease the time taken to shear sheep. It also makes sense that it would stop teats being cut off ewes and help lamb survival.

It would also reduce the

workload for shed hands and it would make either shed hand skills or shearing skills easier to train.

Genetically bare breeches remove the need for crutching or dagging and we showed that it decreased the incidence of flystrike by five times.

The steady increase in the live weight of sheep has been a massive change. I went to a show in Australia recently and I do not think there was a

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ram in the show shed less than 100 kg. This is heavier than a lot of shearers. I still feel guilty about serving up a two tooth ewe that was a Suffolk cross and weighed 104kg after shearing and was shorn by a woman that would have been lucky to be 70kg with a packet of sandwiches inside her.

Farmers need to make this job easier, cheaper and more efficient but they just persist with sheep with wool all over them. It would make the business more profitable but they just complain about the lack of shearers. The other response is to breed sheep without wool and that is not going to help shearers, shed hands or wool brokers and will remove a leg off the chair of sheep farming but nobody is investing in the alternatives.

- David Scobie

Muzzle Station

I enjoyed your article about life and times of Muzzle Station but turned to page 12 and recoiled in some horror at your photograph showing some 15 cattle in the Clarence river as if this were a good thing. It is not. Instead the picture shows the arrogance and contempt that certain station owners have for our pristine environment and I am very disappointed in you.

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Perhaps you could follow up the article with a piece about how Muzzle Station has moved with the times and done what is necessary to keep cattle out of our rivers that belong to all of us here in New Zealand and not to just the farmers.

Andrew Luddington

Editor: Muzzle Station is on the wrong side to the Clarence River and the only way to get stock out to the road head is to cross it. Then they must drive the cattle 40kms out to the Inland Kaikoura Rd.

Farmers are fed up

Really enjoyed your exceptional article about wild deer "Venison hunting- Boom or Bust". I'll be cutting it out and keeping it.

Thanks also for the balanced reporting - we don't mind fighting nature, the weather, world markets, wars, fertilizer, and oil shortages or interruptions, but when your own Government lays into you - enough is enough! And we are fed up.

We farmers are victims of "Taxstagflation". Tax causing price inflation causing interest rates to rise upping mortgage payments causing bankruptcy and unemployment. On top of the 45 per cent rise in the price of superphosphate and 200 per cent rise in urea caused by Russia invading Ukraine and 30 per cent rise in the price of diesel, and the 16 per cent rise in farm wages.



The steady increase in live weight of sheep has been a massive change for shearers.

PHOTO: SUPPLIED

Tax is coming at us from all directions:

We are determined - we most certainly won't be paying winter feed consents and methane taxes, I'm sure Maori Trusts won't either and I can't see other normally compliant farmers going along with it - WE FÄRMERS ÄRE ON STRIKE.

I don't know what the Government could possibly do about it.

> - Dave Stanton ***

Wild deer, a pest or valuable resource?

Your series of articles (November 2022 issue) refreshingly raised the question as to whether wild deer are a pest or a valuable resource.

Your article claimed deer were introduced for "wealthy settlers". This is in error. Deer and other fish and game species (e.g. trout, salmon, pheasant, quail, etc.) were introduced by people who had deliberately abandoned the home country's feudal society built around

privilege and a pecking order based on wealth, to set up one, based on social equality and opportunity for all regardless of wealth, "class" or ethnic background.

In your article, a DoC officer stated deer eat native vegetation. But they also eat and prefer grass. Furthermore, they prefer some species as palatable (e.g. broadleaf) while others are unpalatable (e.g manuka, native broom). This pattern of palatable and unpalatable vegetation was

similar to moa browsing over a period of 60 million years. The hypothetical question is if moa were still around, would extreme green groups and DoC see them as a threat because they browsed foliage?

The reality is any browser whether it is moas or deer in numbers beyond the carrying capacity of the habitat, can have an adverse impact, although probably temporarily. Population numbers decline until equilibrium between browsers and food supply is reached.

Erosion has little or nothing to do with deer. Botanist/ hydrologist the late Dr Patrick Grant examined erosion relative to wild animals and climate change. His curiosity was aroused by early missionary/explorer William Colenso who in the 1840s travelled across the Ruahines. Colenso recounted massive landslips and streams choked with shingle and dead trees -40 years before the first wild animals were liberated.

Instead, he concluded major eroded areas originated before animals were introduced and were due to climate change and cyclic natural climate fluctuations with storms and extreme weather the cause. That in itself is an interesting topic on its own in view of the climate change debate!

- Tony Orman





Thirteen beekeepers from the Southern Beekeepers Discussion Group donated the best of their honey bee stocks to form the closed breeding programme.



The program made significant genetic gains in the early years.

PHOTOS: ISTOCK.

Betta Bees up for sale – looking for queen bee breeding expert



Betta Bees is looking for a buyer!

The leader in improving bee genetics in New Zealand honey bees is up for sale.

The Southland-based breeding programme of shareholder ownership still has a lot to offer despite the downturn in the honey industry, and private ownership is being sought.

Betta Bees Research Limited (BBRL) includes between 200 and 300 hives plus instrumental (II) equipment and the genetics held within the bees, plus the use of the Betta Bees brand.

Unfortunately, the business model of the company of shareholder ownership has proven unviable during the current honey industry downturn says director Peter Bell.

"When you have multiple shareholders you need a board and a general manager and BBRL never got to that point.

"Things don't get done properly because people don't have the time."

The business was founded in 2004 when 13 beekeepers

from the Southern Beekeepers Discussion Group donated the best of their honey bee stocks to form the closed breeding programme. Regular II of virgin queens, raised from the best performing hives and utilising drone semen from similarly desirable hives, formed a breeding programme targeting highly productive Italian-strain bees, with calm temperament and golden colouring. These queens were distributed to shareholders of BBRL for use in their own beekeeping operations.

The staff was employed to manage the beehives and do three insemination runs per year.

Shareholders paid an annual research levy which entitled

them to three AI breeder queens to use in their own beekeeping businesses each year.

The program made significant genetic gains in the early years. Queens were selected for desirable traits like honey production and temperament. But like any breeding program, the gains become less as they got closer to the perfect bee.

Shareholder numbers dropped off. Putake Queen Co. took over management for season 2021-22. However, this winter the board decided a three-year-management agreement should be sought. With none forthcoming, it has been decided to put the business up for sale.

Bell said, "We had staff and

they used to communicate with shareholders but when we got rid of the staff that was no longer the case.

"It got to the point where everyone was relying on the other to do their voluntary stuff.

"There is a reason why it didn't get more shareholdersback then BBRL thought it was too exclusive whereas they should have kept the share price really low," said Bell.

"There was also a problem in that a shareholder paid \$7500 per year and that entitled them to three queens but BBRL could have cut that down to smaller shareholdings and a levy for just one breeder- this would have included more people.







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The hives have been maintained and treated for varroa, but no breeding is taking place at present.

"The more shareholders, the more you have to keep them on board. So as time went by it made it harder because it spiraled down."

At a special meeting, the shareholders gave the directors the mandate to consider industry good as part of the tender process. Many shareholders expressed a keen interest in continuing to purchase breeding queens in the future.

There have been other companies doing this kind of thing in the past but they are no longer operating, says Bell.

'The main focus of BBRL has been on breeding top commercial grade queens to make improvements in both honey production and ease of working bees, and over the years BBRL has been involved with many research project the latest being the Future Bees project out of Otago university," he says.

'We are looking for a beekeeping business that does



Many shareholders expressed a keen interest in continuing to purchase breeding queens in the future

queen rearing as part of their operation. It would also help if they could demonstrate they have been involved with other honey bee breeding programs that have been beneficial to the honey industry. The AI of queen bees is a very technical process and there is only a few people in NZ that have the skills to do it. So any new buyer would need to get the right people on board, with a lot up skilling to run the program successfully."

This mandate gave the opportunity for directors to look for a company/business that would most likely make a success of the business, in being able to provide breeder queens for the whole industry.

It was also decided it would help if the tender could provide information demonstrating past involvement in queen breeding and genetic improvement in NZ honeybees.

With spring well and truly upon the hives, the directors

wish to find a buyer by Christmas. The hives have been maintained and treated for varroa, but no breeding is taking place at present.

Shareholders have given the directors a mandate to find the best buyer for the industry, and not necessarily the top dollar bid.

It was important to the directors to see that the breeding program continued in the future and hoped that this would be just another chapter for a long life for BBRL.



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Riding the Molesworth from Hanmer to Blenheim



Prom the top of Ward
Pass, the northern view is
sublime. The tawny tussock
lands of the upper Awatere
sweep away to the Inland
Kaikoura Range. Standing tall
on the skyline is Mt Tapuaeo-Uenuku, reaching almost
3000 metres into the sky. It
is a steeper, more dramatic
prospect from this direction,
I think – much better to view
it from here than the Picton
ferry where it seems to get lost
among other peaks.

I'm on my motorbike heading for Blenheim, some 220 kilometres. Ward Pass is 80kms up the winding gravel road. I'm feeling pleased because motorbiking is new to me – I putter rather than roar.

The first 20kms of the road

from Hanmer Springs is across Jacks Pass, with its flowering gorse and view of the criss-cross of the Hanmer Plains. It winds its way down along the Clarence River to the old Acheron accommodation house, a cobbuilding propped up here and there with scaffolding — it took a beating during the Kaikoura earthquakes. I fill my water bottle from a tap at the pleasant Department of Conservation (DOC) campsite and use the loo. I think it's a chemical one.

From the accommodation house through to Ward Pass is about 50kms. The corrugations in the road are pretty bad but nothing a car can't handle. As I judder up the Acheron River, all is bliss – the hills are golden, the river clear and there isn't a cloud in the sky. Occasionally I'm overtaken by a larger vehicle, which disappears in a cloud of dust. I'm getting the better deal on my motorbike, I reason. Slower is better for taking in the scenery, despite the dust.

Reluctantly I leave Ward Pass and the view, dropping steeply



Riding up the Acheron River, all is bliss; the hills are golden, the river clear and there isn't a cloud in the sky.

PHOTOS: SUPPLIED

to the paddocks around the Molesworth homestead. There is another DOC campsite, a glorious, grassy spot, sheltered on a good day. I lie flat on my back for a while before heading down the Awatere Valley for the last 120km into Blenheim. The bike purrs.

I start to feel at one with my machine and I'm going faster. What's more I've never visited this valley, and am gob-smacked by its beauty. The road twists and climbs through flowering kanuka trees humming with bees, the river glints far below and the purple hills shimmer in the afternoon heat.

For the last 20 kilometres, as I head out to State Highway 1, the road turns back to tarmac, and I miss the skid and wobble of the gravel. At the intersection of SH1, cars and trucks barrel past at what seems extreme speed. A grey easterly mist rolls in from the sea, and it's damp and cold. But I blat into Blenheim feeling pretty pleased with myself. Not



The Molesworth road winds its way through stunning high country scenery from Hanmer Springs to Blenheim.

bad for an old biddy.

Acheron Rd is open through Molesworth Station from 7am to 7pm daily from the Saturday of Labour Weekend to Easter Monday – or the second Sunday in April – whichever is later. It can close without warning due to weather conditions or fire danger, so it's best to contact DOC before you embark on this journey. But it's worth it!





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App-attack on nassella tussock!



Tassella tussock has dodged radication for over a century and has the dubious claim of being the only weed in New Zealand to have its own Act of Parliament, the Nassella Tussock Act of 1946. But there is hope on the horizon for farmers battling this weed, which primarily occurres in the drought-prone areas of Canterbury and Marlborough.

AgResearch principal scientist, Graeme Bourdôt had spent decades researching nassella tussock and said a new free app developed by AgResearch in collaboration with Environment Canterbury was available to help farmers and regional councils manage the weed on Canterbury properties.

"The nassella tussock app draws on years of research into how nassella tussock plants grow and contribute to the population growth of the weed in dryland sheep and cattle



The population density of nassella across farms in Canterbury is fairly stable at the moment due to farmers digging out the plants PHOTOS: SUPPLIED each year before they seed.

pastures," he said.

"It allows the user to see how different frequencies, intensities, and seasons of grubbing will affect the future number of nassella tussock plants on a block of land and on a neighbouring block of land."

The app counted the number of plants in summer and winter in each of its seven different life stages and kept track of the total tussock population over a number of years.

Until now, although control programmes had reduced nassella populations, eradication remained

elusive, especially as the tussock was inedible to livestock.

However a study published in 2016 showed that the population density of the weed across farms in Canterbury was fairly stable due to farmers digging out the plants each year before they seeded. If this means of control hadn't happened, the study said the weed's population would have grown, maybe reaching the financially damaging spread of the past where some farmers were forced off their land.

Environment Canterbury



biosecurity officer Matt Smith said the app was a great way for farmers to design different control methods on their farms, but yearly grubbing was the best way to decrease or maintain plant numbers.

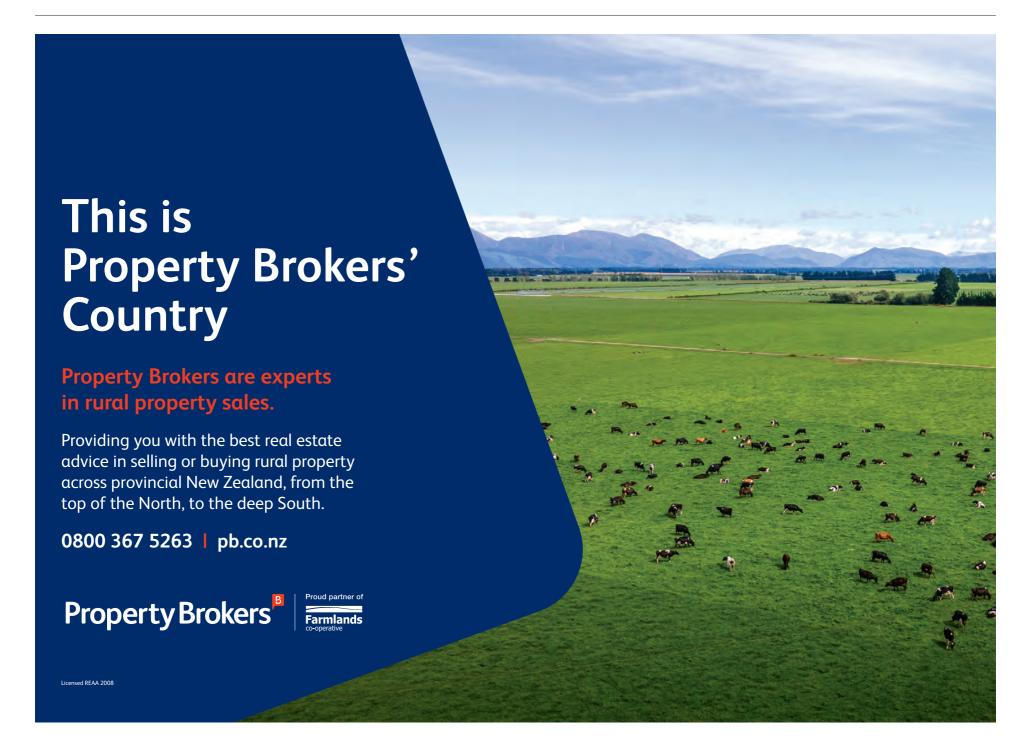
Nassella probably arrived in New Zealand back in the late 1800s. Because it was easily confused with native tussocks the seriousness of this largely unpalatable invader was not recognised until the late 1930s and early 1940's.

By this time it had replaced other pasture species to form

virtual monocultures on many farms in Marlborough and North Canterbury. Anecdotal evidence suggested spread was very rapid during this period and at its peak, was estimated at approximately 34,000 mature plants per hectare. At this time control was often beyond the financial means of farmers.

Today, nassella is prevalent along the east coasts of both islands. Marlborough and Canterbury are hit the hardest.

The app can be found at:www. nassella-tussock-populationmodel-nz.agresearch.co.nz/



Surge in European demand for manuka honey at crucial time



🗸 iwi manuka honey Kexporters have seen a surge in European demand as the removal of tariffs lines up with a fall in the value of the NZ dollar and a strong harvest, says honey broker John Hartnell.

The impact of removing a 17.3 per cent tariff on NZ honey in July, under a new European Union-New Zealand free trade agreement, was now filtering down into increasing sales.

Derek Burchell-Burger, Naki NZ global market manager, said the response from the EU importers following the removal of import tariffs was immediate - contributing to an annual sales growth of over 1 per cent.

He said premium manuka honey retails for up to \$800 per



Premium manuka honey retails for up to \$800 per kg in Europe and the pandemic has helped boost consumer interest in the health features of the product.

PHOTO: SUPP

kg in Europe and the pandemic had helped boost consumer interest in the health features of the product, despite the reduction in discretionary spending.

Hartnell said the Euro exchange rate had also offered some reprieve for NZ exporters, but in reality it was not going to generate the level of sales

required to sell more volume.

"A sliding NZ dollar has reduced the cost of Kiwi imports by around 8 per cent against the Euro - compared to the same time last year.

"However prices being paid by the large export packers are about half what it was three years ago; at some point we will

see this flow on to the importers with lower prices being offered in the market, hopefully not too low as it takes a long time to bring them back up," Hartnell said.

"Overproduction? We are selling around 15,000 metric tonnes of manuka honey a year, we have been producing 20,000 to 25,000 metric tonnes. Something has to break as honey in a drum unsold does not pay the bills or the wages. Hive numbers will continue to fall in this environment- the high was around 925,000 - the low might be 600,000, before we see some stability," he said.

NZ honey sales to the EU have risen dramatically in recent years, driven by growing interest from German consumers for Kiwi manuka blends. Sales to Europe reached \$60 million last year, around 12 per cent of the \$500m export market.

Manuka hive numbers around the country have fallen over the past year by 40 per cent from a peak of 1 million, providing more choice of where to place the hives for Kiwi apiarists and a better quality export product.

On the other hand, industry experts said the 2023 manuka season was expected to be strong with high levels of moisture in the soil and the predicted La Nina weather patterns set to contribute to increased nectar flows over the coming months.

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Lochinver Station on the Rangitaiki Plains joins Pamu's Kepler Farm as a progeny test site for the INZB programme.

PHOTO: SUPPLIED

Lochinver chosen for groundbreaking beef genetics

One of New Zealand's largest farms has been selected to be part of the innovative Informing New Zealand Beef (INZB) genetics programme.

Lochinver Station on the Rangitaiki Plains joins Pamu's Kepler Farm near Te Anau as a progeny test site for the INZB programme, which was being led by Beef + Lamb New Zealand Genetics, with the support of the Ministry for Primary Industries' Sustainable Food & Fibre Futures (SFF Futures) partnership.

The across-breed beef progeny test uses angus, hereford and now simmental genetics to identify the performance of agreed-on traits. Angus cows will be artificially inseminated at Lochinver in January 2023 with angus, hereford and simmental bulls used at the North Island farm.

The overall aim of the seven-year INZB programme was to improve profitability and enhance sustainability across the beef industry through the development and adoption of

In addition to developing a beef genetic evaluation system to support a sustainable beef farming industry in New Zealand, the programme would also create easy-to-use tools to enable data to be efficiently collected, managed, analysed and used by farmers to make profitable decisions for their operation.

Informing New Zealand Beef's (INZB) science lead Jason Archer said the test would gather data which would allow the breeds as well as the bulls to be compared.

"It will enable us to demonstrate the differences and similarities between the breeds, along with the benefits of hybrid vigour, but the main purpose is to evaluate good bulls on the same base.

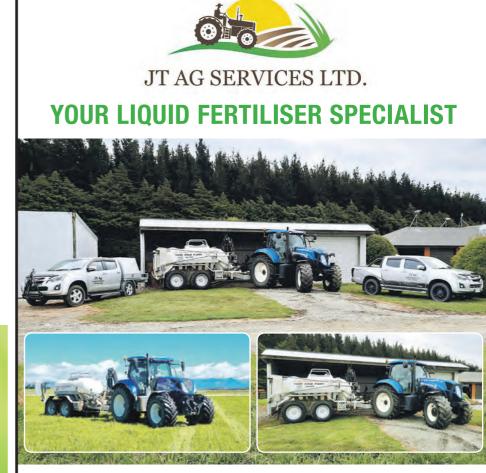
"Importantly, the expansion into the North Island will allow the inclusion of simmental genetics into the test. It will give us more capacity to analyse these breeds together as a dataset."

Steve Smith, business manager at Lochinver Station, said the Lochinver team was excited to join the project.

"We have a large focus on beef production and are looking forward to being a part of something that helps build a stronger beef industry in New Zealand.

"The programme will provide tools to help evaluate across breeds and the data can be used to make more profitable onfarm decisions.





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Managing and operating good effluent systems

Good effluent management is a combination of having a well-designed effluent system and processes for people that make sure the effluent the system collects is applied to pasture in the right amount at the right time.

According to Dairy NZ the key to good decision making is understanding the soil water deficit. It is essential to prevent ponding and run-off and to avoid applying effluent to saturated soils.

Soil water deficit is the amount of water (ie effluent) which can be applied to the soil before it reaches field capacity (which refers to the amount of water held in the soil after excess water has drained away). If effluent is added at field capacity it will likely result in ponding, runoff or leaching.

New Zealand's dairy farm systems produce large quantities of nutrient-rich effluent which are captured from milking sheds, holding yards, feed pads, standoff pads, and animal shelters. The average dairy cow produces about \$25 worth of nutrients annually as farm dairy effluent (FDE).

For a 400 cow dairy herd this represents about \$10,000 of nutrients annually. Using effluent to supplement fertiliser presents an opportunity to capitalise on a cost-effective nutrient resource while improving whole farm nutrient use efficiency.

Effluent is commonly grouped into three broad categories based on dry matter (DM) content: liquids (0–5%), slurries (5–15%) and solids (>15%).

To get good value out of effluent and reduce environmental risk consider:

- Timing of application
- Rate of application/depth of application
- Where possible, leave a buffer strip next to waterways and farm boundaries.

The DairyNZ Farm Dairy Effluent Spreading Calculator (app or Excel spreadsheet) allows farmers to easily calculate nutrient loadings and application rates for dairy effluent based on a number of customisable inputs. This means that farmers can manage the application of their effluent nutrients with greater precision.

There are two calculators in this app, the Quick Calculator which is for spray irrigation systems such as travelling irrigators and sprinklers, and an Advanced Calculator which is for slurry tankers and muck spreaders.

Spreading effluent solids requires specialist machinery which is suited to the type of effluent being spread. For information about effluent solids spreading methods, considerations and equipment see Effluent Slurries, Sludge and Solids Spreading in the Dairy NZ website.

Keeping on top of maintenance tasks for irrigation application equipment is essential for good performance and many farmers like to keep a regular check on their application depths and rates.

For further information on this, again, go to the Dairy NZ website.



New Zealand's dairy farm systems produce large quantities of nutrient-rich effluent which are captured from milking sheds, holding yards, feed pads, standoff pads, and animal shelters.



Using effluent to supplement fertiliser presents an opportunity to capitalise on a cost-effective nutrient resource while improving whole farm nutrient use efficiency.

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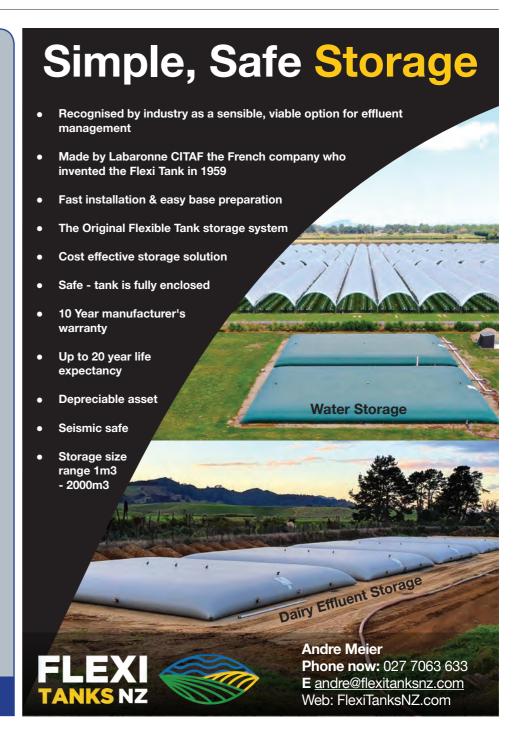
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Cole Groves: hands-on dairy but driven to help industry



The Groves family: from left to right: Hunter, Ginny, Ebony and Cole.

A shburton dairy farmer Cole Groves (36) lives life at million miles per hour and it's not hard to see why.

With wife Ginny, he milks just over 400 cows near Hinds in Mid Canterbury and adding to this has taken on a number of governance roles. He is part of a DairyNZ Hinds catchment group; has been a director and chair of Young Farmers; has taken part in governance development programmes through both Fonterra and Silver Fern Farms; and is a board observer for Mayfield Hinds Irrigation Ltd.

What's more, communitywise, he chairs the board of the local Hinds Primary School, attended by his daughter Ebony (8) and is a director of the Geraldine Pre-School where son Hunter (4) goes. Wife Ginny is equally as busy, as a mum and co-owner of a children's clothing store in Geraldine. So this couple is really, really full on!

For Cole, dairy farming is more than just putting cups on cows. "There's a wealth of science behind it," he says.
"Even on a small farm, you're a
multi-million dollar enterprise
with assets and income. There's
a helluva' lot at stake."

Cole was raised by a nonfarming family near Auckland - however he had an aunty who was a sharemilker.

"From her, I knew dairy was what I wanted to do from early on – it had always been a passion," he says.

"Sometimes it doesn't feel like it when you have to get up at half past four in the morning but I've always wanted to do agriculture and dairy farming was it."

Cole got into farming via Lincoln University, where he won a four-year DairyNZ tuition scholarship and graduated with an honours degree in agricultural science.

But his progression through the industry was somewhat rocky. Sharemilking on Ginny's parents farm at Pleasant Point back in 2015, the low payout years hit and the couple ended up having to sell their herd. Another loss-making year of contract milking followed- heartbreaking for the family.

But in 2017 came the opportunity to buy their current farm, Coldstream Pastures, at Hinds in an equity partnership with the in-laws.

They sold off 67ha to a neighbour to make the deal affordable, leaving them with (a small-for-Canterbury) 120ha farm.

"So we've moved though the sharemilking system and leveraged ourselves hugely. We're really driven on this place to be profitable, pay debt back and get the environmental footprint right," Cole says.

Running the farm with only two staff members, Cole has trimmed cow numbers from a high of 445 by culling the poorer performers. He milks 415 cows at peak season, as he seeks to find an environmental equilibrium.

Another aim is to reduce nitrogen fertiliser inputs and grow fodder beet on-farm to limit the amount of higherprotein autumn baleage fed out.

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Hunter and Ebony playing a part in calf rearing on Coldstream Pastures.

"Overseer is not exact on to the science of fodderbeet yet but I think we have to go with what it says. The major thing is just using the supplement in autumn," Cole says.

Nitrate leaching occurs mainly in autumn- if you're going to get a huge rainfall event it just drains down to the bottom, Cole says. "We don't apply any fertiliser in May to counter this."

Cole is part of a DairyNZ Hinds catchment group that has been working to figure out the best way to maintain profitability with environmental responsibility.

But he says new water regulations are "frightening" and risk losing the support farmers had with the previous nitrate reduction goals.

"There are 50 farmers between Hinds/ Hekeao Plains and the Selwyn/Waihora catchment that are part of this reduced nitrates program," he says.

"It's a great thing to do, but if the end goal is not achievable, what then?"

There is much science behind a limit of 2.4mg/l for nitrates, whereas there was buy-in for the original target of 6.9, Cole says.

"If you make things really difficult, farmers will just go, 'well, what the heck, I'm never going to reach it'."

And what's more, Southland farmers threw a hissy-fit to make the Government understand that new wintering rules were impossible and that was "more than upsetting," Cole says.

Along with his governance roles, Cole is also chair of the National Mastitis Advisory Committee and a member of the Mid-Canterbury Rural Support Trust.

He previously stood (unsuccessfully) for the DairyNZ board in 2017 but was then accepted into a six-month associate directorship.

He knew he was up against the big guys, standing for election against DairyNZ chairman Jim van der Poel and Dairy Holdings chief executive Colin Glass.

"That didn't worry me. I was asked to stand by a few dairy providers because it gave people options, it exposed me to the rest of the levy-payers and I brought something different to Jim and Colin," he says.

"But ultimately I am just hands-on on my dairy farm but also driven to make sure that I have an effect on the dairy industry positively," he says.



For Cole Groves, even on a small farm, there is a multi-million dollar enterprise with assets and income.



We're really driven on this place to be profitable, pay debt back, and get the environmental footprint right.



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Nait tracing - do you trust it?



The National Animal Identification and Tracing (NAIT) programme is contact tracing for cattle and deer and, as the most important tool for eradication of diseases like Mycoplasma Bovis, it's vital that farmers retain faith in the system.

Each animal is tagged with a Radio Frequency Identification (RFID) tag which has a unique NAIT number. The animal's breed, sex, date of birth and current location are permanently associated with that NAIT number until its eventual death.

If an animal is sold or moves properties, then a movement must be recorded on the NAIT website so the Ministry for Primary Industries (MPI) can ascertain its whereabouts at any time

In the case of a disease outbreak, such as the current M. bovis infections on farms around Wakanui's Five Star Feedlot, animals which have moved off infected properties and onto other farms can quickly be identified and located for testing.

As a dairy farmer just outside the new controlled area encircling the feedlot, it was with a sense of dread that I answered the phone in late September to be told the caller was from MPI. They were interested in two animals that had moved off my property in July and onto a farm with bovis.

The dread was replaced with relief as I explained the two animals were 4-day old bobby calves, a neighbouring farmer was winter grazing his cattle on a property where bovis had been detected and one of his heifers had calved. Unfortunately, the calf died, and he couldn't bring the heifer home to milk, would I be able to supply a couple of calves to suckle off her?

The lady from MPI listened patiently to my explanation and said no, the two animals I sent were 7 years old and 5 years old and there was no record of me having bought them, only sending them to an infected property.

Now, when I sent those two

calves off, I tagged them and registered them with NAIT. Their breed, sex and date of birth were duly recorded, and a movement was lodged on the same day. How was MPI confusing animals that were nearly three months old with fully grown cows?

The answer was soon revealed when I logged onto the NAIT website and punched in the calves' NAIT numbers. On the right-hand side of the page was a column dedicated to the animal's visual ID, normally a simple tag number such as 7 so the cow is easily identifiable

within the herd. The farmer who had received the calves used old calf tags for this purpose, and they bear a printed year of birth on them, In this case 2015 and 2017.

To MPI's credit they accepted my explanation and closed the file within the day, and they were professional and polite the whole time through. But the fact I followed all the rules to the letter and still got caught up in the web, all because someone was looking at information not even relevant to NAIT, absolutely shook my faith in the system.





CRV's new lab gears up for mating

Experts from Brazil, India, and the US have been putting the team at CRV's new sexed semen lab through rigorous training over the last 18 months as they prepare to deliver high-quality sexed semen to dairy farmers this coming mating.

CRV has collaborated with Genus IntelliGen® Technologies to bring proven innovative sexed semen technology to New Zealand. The technology is housed within a purpose-built laboratory at CRV's Bellevue production and logistics facility in the Waikato.

Commissioned in February 2022, the new facility will provide CRV with the capacity to produce sexed semen on a daily basis and therefore tripling its own production capacity, as more dairy farmers look to accelerate the genetic gains and reduce bobby calf numbers.

The new facility is equipped with IntelliGen® Technology, the only commercial laserablation¹ semen sexing technology available in key global markets. This cutting-edge technology has successfully inseminated millions of cattle around the world.

Genus Laboratory manager Amanda Nonato from Brazil spent six months in New Zealand facilitating the training. She says after rigorous training, the lab is now well resourced with more than eight New Zealand technicians qualified in the intricate sexed semen production process.

"Our team here in New Zealand is employed by Genus to process semen from a selection of CRV's best New Zealand bulls.

"The entire team has been specially trained by our international experts in the delicate process to produce the very best sexed semen from these bulls using Genus's world-leading technology."

IntelliGen Technology's process for developing sexed bovine genetics is gentler on the sperm cells than traditional sexed semen processes.

This cutting-edge technology does not subject semen cells to the high pressures, electric currents and shear forces that are used in the traditional sexed semen technology, which reduces stress on the cells as they are processed.

Nonato says the training process has involved Genus' experienced trainers working closely alongside trainees, observing their technique, and giving them feedback to ensure



Genus' experienced trainers have worked closely alongside trainees, observing their technique, and giving them feedback to ensure they consistently produce a high-quality product.

they consistently produce a high-quality product.

"The IntelliGen sexing process is unique and

proprietary. I'm very happy and confident with everything that we have accomplished here in New Zealand. The team is already producing some top-quality results and we will continue to work with them and train any additional new hires.

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CRV Operations manager Andy Medley says it was challenging to set up the new lab with New Zealand's borders closed due to Covid-19.

PHOTOS: SUPPLIE PHOTOS: SUPPLIED

"New Zealand dairy farmers can maximize their herds' genetic gain through using CRV sexed semen as we are offering our very best bulls that are leading in Health and Efficiency."

CRV Operations manager Andy Medley says it was challenging to set up the new lab with New Zealand's borders closed due to Covid-19. However, everything is now in place and the lab is already operating 24 hours a day, five days a week.

The demand for sexed semen from New Zealand dairy farmers continues to grow year on year. The innovative technology we are using at Bellevue means we can provide farmers with a high-quality sexed product to help them maximise their profitability and achieve genetic gains faster and in a more efficient way."

How does the technology work?

• The semen is put through a preliminary quality control process

- to make sure it is viable and motile.
- · The cells are then stained and loaded onto the technology platform where we identify the sex skew in the sample.
- A sperm cell containing female DNA is heavier and more dense than male DNA. When cells are passing by detection laser, the software can then detect the difference in DNA content.
- The system will then identify the female cells that we're interested in and use another laser to inactivate the unwanted cells. The desired cells and the inactivated cells are combined and included in the straw. Cells are prepared with the right buffers for freezing and packaged at the right concentration.
- The straws are then frozen. Each batch must pass stringent quality control criteria and is then ready for transport to customers on farm.





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What mineral should worry you?

Most dairy farmers realise that minerals play a role in their dairy farm. So I take much interest in asking dairy farmers which minerals worry them the most? The answers are always interesting but rarely are they correct.

So what drives this confusion? A number of things!

The first driver of concern is seeing clinical signs of a mineral deficiency on farm. In this category I put magnesium (Mg), phosphorus (P) and selenium (Se). These important minerals drive clear signs of deficiency, with Mg deficiency we see tetany and agitated animals, P deficiency we see crawler cows, and selenium/Vitamin E deficiency at calving is evident with an increase in retained membranes.

The second most common driver is a deficiency highlighted by blood or liver test, hopefully by liver test as they are much more accurate. This usually highlights Cobalt (Vitamin B12), Copper, Selenium, Iodine and Zinc. For me this is a problematic response.

Often blood values are explained to farmers as being simply on the spectrum of deficient/good/toxic. In many cases they are explained by a veterinary professional with little to no understanding



The third most common driver of which mineral is worrying a farmer is what is being discussed in the media/farm forums/advertisements etc.

PHOTO: SUPPLIED

of the various homeostatic and physiologic principles that guide the levels of these minerals in blood plasma. As I said, a liver biopsy is a little more accurate but still needs to be explained by a trained nutritionist.

Furthermore, using blood values as a warning sign without considering diet, production level and animal health status is completely pointless

The third most common driver of which mineral is worrying a farmer is what is being discussed in the media/farm forums/advertisements etc. I understand why this is the case, but it is far from being relevant to a particular farm. It may be environmental groups/authorities concerned

about Nitrogen (N) levels in the waterways (yes N is a mineral). It might be companies trying to sell stuff (heaven forbid), it might be research agencies trying to improve grass growth or milk production. In recent times this has been focused on N, chelated minerals and even the benefits of potassium for growing more grass.

So where does this leave us? Completely in the dark. Why? Because all three major drivers missed the most important mineral. It is calcium.

It is the mineral that is strangely not associated with its most clinical observation (Milk Fever Downer) and is often suspected as the cause.

Secondly, it cannot really be tested for in blood and definitely not in the liver as it is homeostatically controlled, although vet groups do it all the time.

And thirdly no one really talks about it because it is everywhere and it is cheap as chips and great for the environment! Poor old calcium, it does the hard yards and never gets a mention.

So why should you worry about it? Simply put a deficiency of calcium is behind all the major diseases, milk fever, mastitis, ketosis, lameness, dystocia, broken bones etc. etc.

You must know the Calcium content of your cows' diet. This starts with a grass test and talking to one of the Sollus team about how much ag lime you need in your diet. It will be the cheapest thing you ever do.

www.sollus.co.nz

– Dr. Joe McGrath, Sollus Head Nutritionist



Blockchain - what's that all about?



Blockchain is one of the latest developments in the field of information and communications technology that has begun to revolutionize our planet. The applications of blockchain are only now being fully explored, and its potential is seen as truly immense.

Blockchain has recently started to influence the dynamics of the agricultural industry as well.

In farming or agriculture, blockchain is utilized as a system that helps to increase the volume of reliable information available with regard to inventories, contracts in agriculture, and the general state of the farms. As it is a reliable and trusted method of storing data, it allows for the facilitation of various datadriven innovations in order to herald in the era of smart farming. When coupled with the concept of smart contracts,



Although smart technology has been available to farming for some time now, a major issue has to do with establishing a reliable and comprehensive security system in order to properly manage and utilize the data being collected.

PHOTOS PHOTOS: SUPPLIED

it helps to also smooth the nature of transactions between various stakeholders by making things more timely.

Smart farming or smart agriculture is the process of utilizing various modern technological developments in order to improve the efficiency and reliability of the farming

process. It includes facets such as ICT, internet of things (IoT), various sensors, machine learning technology, and numerous data collection and analytical machines such as unmanned aerial vehicles.

Although smart technology has been available to farming for some time now, a major

issue in the application of this technology has to do with establishing a reliable and comprehensive security system in order to properly manage and utilize the data being collected.

Thanks to blockchain technology, it is now possible to store information in a secured way. The various stakeholders

of the process are allowed to generate the necessary data every step of the way, ranging from the seed to sale of various agricultural produce. Blockchain helps to retain the transparency of the data and ensures that all figures are entirely unchangeable.

Continued on P28



Stay & Play

Based at the foothills of the Southern Alps, there are few scenic alpine courses like it. From the first time novice to the aspiring professional, the ever-changing landscape acts as the perfect playground for visitors of all ages.

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From P27

The food supply chain in agriculture has now become longer and more intense than ever before thanks to the forces of globalization. The fact however remains that there are plenty of problems that exist in the current food supply chain, and this includes issues related to food safety, quality, traceability, trust, and supply chain inefficiency. Blockchain technology helps to solve a large number of these issues by enabling an environment where trust can be established between the producers and consumers. Transparency in this process can be greatly boosted by offering individual product information within the blockchain.

The purchase and sale of agricultural products on e-commerce sites can be greatly boosted with the help of blockchain technology. It helps this segment in two key ways: 1) Information security, and 2) Supply chain management.

With regard to information security, blockchain offers the vital feature of private key encryption in order to improve the validity of the authentication process. This can help to apply all of the data collected from the planting and harvesting phases in a safe and secure manner.

It is clear that there are heaps

of benefits to be attained by the use of blockchain technology in agriculture:

- Blockchain in agriculture enables peer-to-peer transactions to occur with transparency.
- Instead of placing trust in an authority, it is placed in peer-to-peer frameworks and cryptography.
- · Blockchain helps to improve and restore the trust between various stakeholders such as consumers and producers.
- Thanks to blockchain technology, we now have access to a reliable method of conducting transactions between various anonymous members.
- It is easy to detect and report any instances of malfunctions or frauds in the blockchain.
- Tracking products in an extensive supply chain is a lot easier with blockchain technology.
- There is greater transparency regarding all transactions within a blockchain ecosystem.

The following are some of the limitations of blockchain in agriculture:

• The motivations of all transacting parties to provide accurate information on the blockchain ledger needs to be further studied.



Blockchain is utilized as a system to help increase the volume of reliable information available with regard to inventories, contracts in agriculture, and the general state of the farms.

 The overall technological benefits of using blockchain may be dependent on the size of the farm. While it's easier for small farms to participate in the insurance

created by blockchain, it is more convenient for larger farms to collect and integrate various sources of real-time farm data

• Uploading the data to a

blockchain is known to be an expensive process.

Does this article interest you? Or does it bamboozle you? There is more information to be found on Google.



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Record LIC graduation rate a testament to genomics

record number of young Abulls have joined LIC's elite bull teams this spring, with twenty-seven bulls making the cut and ready to help sire the next generation of profitable and efficient dairy cows.

The 2018-born bulls secured their spot in the team after their superior performance that was predicted by genomics was validated by herd testing data from their first crop of daughters which were now being milked on farms across the country.

LIC livestock selection manager, Simon Worth, said the co-op's continued investment into genomic science was helping to drive profitability on farm by identifying elite artificial breeding sires at a

"With genomics we combine a bull's DNA and ancestry information to get a more reliable prediction of its performance at a young age. We've been investing and refining the use of genomics in our breeding programme for decades, and this year's graduation rate is a testament

that this cutting-edge science is delivering results and predicting star performers with

Worth said this time of year was always a highlight for his team who were responsible for LIC's breeding scheme; from the contract matings through to selecting young bulls to join the co-op's sire proving scheme.

"It's a phenomenal graduation rate, there's no doubt about it. We're really pleased that these selected graduating bulls were sired by 17 different bulls so in addition to turbo-charging the genetic merit of our premier sires teams, they're also ensuring genetic diversity."

Worth said being selected for a premier sires bull team was no

"The bar is set extremely high, and rightly so. When we select our bulls, it's first and foremost about how they rank on breeding worth (BW). If they tick that box, we then assess them for a range of other traits farmers are looking for in their cows.

'The addition of these bulls



27 young bulls have graduated into LIC's artificial breeding bull teams this spring including Jersey bull, Careys CM Lexicon S2J.

is based on extreme indexes, and a balance of production efficiency, udder conformation and management traits that help farmers breed better cows."

Worth said using elite bulls to sire the next generation of replacements was an important

tool to help farmers tackle climate challenges.

"Breeding the best cows, faster is key to helping farmers remain profitable and sustainable. A strong focus on herd improvement and consistent use of high-BW bull teams will deliver results

on-farm by breeding cows that produce more and are more emissions efficient."

Worth said not only did this year's spring bull graduates break an LIC record, they also made an impact on the industry's ranking of active sires (RAS) list, which ranks bulls from all breeding companies according to their breeding worth.

Of the top-30 bulls across all breeds, 13 were the co-op's new spring bulls with two of the new graduates occupying the number one and two spot -KiwiCross bulls Gordons Flash-Gordon and Schraders Trader.

Dairy herds across the country would be using these genetically superior young bulls for mating now through LIC's range of premier sires bull

"The beauty of our fresh semen service means we can select a bull to join a team one day and his genetics can arrive on-farm the next day for insemination, so we can deliver that genetic improvement onfarm almost immediately for farmers to capitalise on.'

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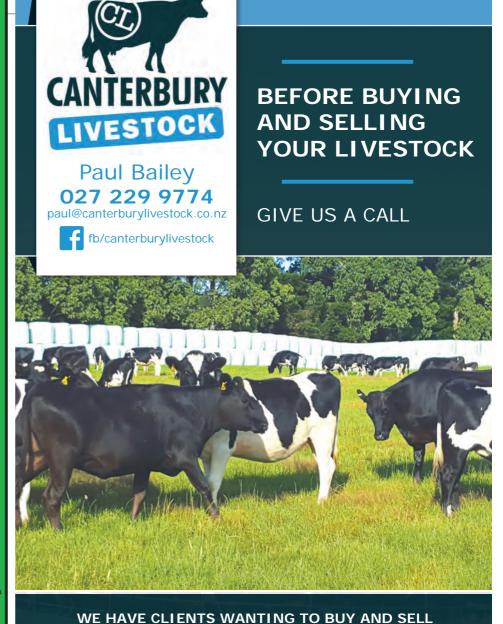
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THECOUNTRY

Make sure you catch up with these two!

CONNECT: Broadcasters Rowena Duncum and Jamie Mackay are passionate about farming on the air. Meet them at the Fieldays!

IN ROWENA'S WORDS...

hhh Fieldays with jandals – how good!
Like Jamie, I'm hissing for a summer Fieldays for a change.
As the days are getting longer, we're all getting

As the days are getting longer, we're all getting a bit more of the big yellow in our lives, so it stands to reason moods will be high.

And to be honest, we need that. It's been a challenging year, so getting to catch up with new and old friends will be just what the doctor ordered for so many of us.

I'm also looking forward to facilitating the panel discussion 'Wāhine toa o te Whenua' - an introduction to the food and fibre sector for rural and urban young women at the Fieldays Opportunity Grows Here Careers Hub.

The wider agricultural sector is crying out for bright young minds and what they see, experience, learn and feel at Fieldays may be the start of something really special for these young women.

I mean, it was for me, back in 2008, and I haven't been able to stay away from the sector ever since!
So, book in those relief milkers, get the neighbour to feed the dogs and we'll see you at Mystery Creek!

A WORD FROM JAMIE.

hey say a change is as good as a holiday, and that's how I feel about Fieldays 2022. After the best part of three decades attending in mid-June, it's going to be so different rocking up to Mystery Creek in a polo shirt and shorts at the beginning of summer.

To be honest I won't miss the fog delays at Hamilton airport or driving to and from Fieldays in the dark, so I'm looking forward to the longer daylight and the opportunities it affords to spend more time on site.

My days of being in the market for a new tractor are long gone, so for me Fieldays is all about networking and catching up with all the key players in agri-business on a face-to-face basis. Because they're all there.

Rowena Duncum and I will be broadcasting The

Rowena Duncum and I will be broadcasting The Country from Fieldays for three days and the big challenge when it comes to putting our show together, is who to leave out, rather than who to include. It's a radio broadcasting feast!

And besides, there's a very nice golf course, Tieke, that boundaries Mystery Creek so I'm looking forward to jumping the proverbial fence later in the day and taking full advantage of a 'Tron twilight.



Jamie Mackay and Rowena Duncum broadcast The Country radio show on Newstalk ZB, Gold Sport, and Hokonui Monday to Friday 12-1pm. Also streamed on iHeart Radio and on demand at www.thecountry.co.nz



THECOUNTRY

So, do farmers ever really retire?

PROFILE: Or, as in my neighbour Tony East's case, do they make a wetland, writes **Kem Ormond**.



t is said that, in the country, your neighbours are one of your most important assets and, on a few occasions, I have had to call on my neighbours for assistance.

My closest neighbour, Tony East, is starting to wind down from a busy life farming and is now happy just to have a few chooks and pigs to look after. At 81, he can still get on a hand piece, deal with his pigs, and split his firewood.

He is the kind of neighbour everyone wants, one who just drops off a bin of gum at your woodshed, leaves a pumpkin on your gatepost or lends you his tractor and wood splitter.

Being an agent for Dalgety Stud Stock Company was quite a prestigious occupation in the rural industry back in 1965, when Tony started his career. Meeting stud breeders and checking out their studs, all part of the job.

After 25 years in the industry, which saw Tony work in the Manawatū, Hawke's Bay and Southland, he changed from the stock and station industry to become a farmer.

In 1989 he moved to Kotemaori in the Wairoa district, where he and his wife purchased a 232-hectare sheep and beef farm. He soon learned that



his farm was more suitable and profitable for the fattening of Friesian bulls rather than Angus and he decided fewer sheep would be easier, so reduced his sheep numbers from 3000 down to 1200 ewes.

Not one for sitting back and just letting things happen, Tony also became chairman of Quality Roading and Services, chairman of the local Federated Farmers and was elected to the District Health Board.

After 20 years of farming, Tony and his wife sold their farm to an energy company, choosing a quieter life back in Hawke's Bay which eventually included purchasing a

couple hundred acres in the Tuki Tuki Valley to keep him busy.

Tony says: "The biggest change in farming over the past 50 years is that land has appreciated in value considerably, there are now better farmers and better advice available. Accumulated knowledge and progressive technology have improved productivity and profitability but, during that time, there has been some debilitating product prices and weather conditions.

"Improved genetics and better pasture management have increased crop yields, lambing percentages, and carcass weights considerably. With supplementary crops measured and managed more accurately, there has been a considerable increase in production.

"Technology has made a huge impact to business planning with computers, mobile phones and GPS becoming the norm. Better planning, measuring, assessing and reviewing are now so easily accessible.

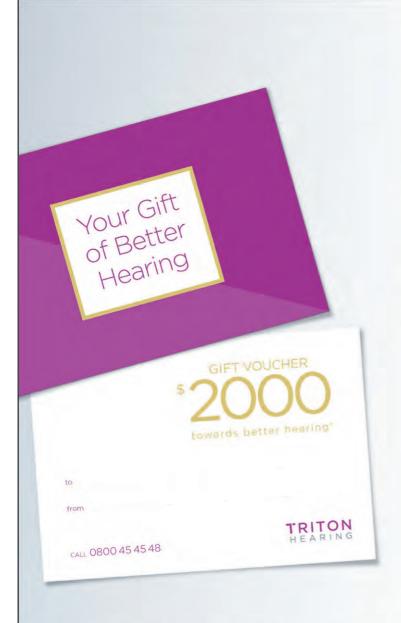
"Unfortunately, new regulations from both central and local government have created new costs that will only increase without any obvious improvement in revenue."

While some farmers might still use a pencil and notebook, most have all the info they need on their mobile phone. Even altering their irrigation system by a phone app has freed up time for farmers considerably.

Climate change and clean water have seen many farmers turning muddy dams into pristine wetland areas and planting out pockets of native flora to help encourage native birdlife back into the area.

Long gone are the thermoses farmers always used for a cuppa in the back paddock, farm hacks have been replaced by quads and side by sides and, while some changes have been noticeable, some activities have remained just the same, like the hard work and handpieces still being used for shearing.

They say farmers never retire ... well maybe a few do. As for Tony, he has a wetland area that he will be working on and won't be stopping any time soon. He wants to see all those native birds enjoying life on their small piece of paradise.



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Tony East and

moment on the

periphery of his

QEII wetland.

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THE COUNTRY



FEATURES: An Amarok for off-roading or lifestyling, Volkswagen offers versatility, writes **Kem Ormond**

> nyone seen a Wolf lately? Well, the wolf is back! This second-generation Amarok could easily be described

as a workhorse in wolf's clothing! Amarok means "wolf"in Inuit language. A rather appropriate name for a beast of a ute!

The new Amarok Ute has been unveiled to the world, making a clear statement for its drivers, all roads are the destination.

This new generation Volkswagen ute is tough enough for your work vehicle, rugged enough for off-road, with a spacious double cab, and various driving assistance and safety systems offering more support and comfort than ever before.

First introduced

The Amarok was first introduced into New Zealand in 2011. It was launched as a game-changing ute that challenged the category norm of a workhorse with premium refinement, supreme drive systems, high load capacities and functionality with an all-terrain de-



Twelve years later

With clear Volkswagen DNA inside and out, the hugely anticipated second generation Amarok is about to show its presence and New Zealand drivers can register their interest now, with vehicles being available for driveaway in 2023.

Originally designed and conceived in Germany and Australia, the new Amarok is a collaborative result, ensuring road-ready suitability to meet the challenges of South Pacific

Specifications and design

With cutting edge design and Volkswagen refinement, this new ute brings with it a whole new level of safety and driver aids along with some great features that will make it exceptional to drive.

Whether you are after a diesel with four cylinders or a powerful sixcylinder, there is a model to suit every need. The "PanAmericana" has a masculine and tough exterior whereas the "Aventura" can be described as power meeting the ultimate in refinement and sophistication

Packed with plenty of torque, 3.5 tonnes of towing power and with more than 30 driver assist systems, this is one howling ute!

New inclusions such as a digital instrument cluster, keyless access, an impressive 12-inch infotainment screen, and wireless mobile charging, make for the perfect blend of design and practicality.

A capable off-roader

Lead the pack with enhanced offroad capabilities. An increased wheelbase means shorter overhang resulting in an improved approach angle, while a greater wading depth means you can charge through watery terrain with ease. From the improved body and chassis to the refined dimensions, every component is engineered for adventure.

An Amarok for all lifestyles

With four models to choose from this is a premium performance ute that doubles down on style. The new Amarok Aventura will turn heads with large 20" alloy wheels, a bodycoloured sports bar, and chrome accents including steps, mirrors, door handles, and rear bumper.

While those who opt for the new Amarok PanAmericana, can get ready for the entire off-road package. With a black powder-coated styling bar and steps as well as colourcontrasting exterior mirrors, bumpers, and door handles. Plus, allterrain tyres on 18" light-alloy wheels, which are exclusive to this model.

The Amarok Style is complimented by 500 Nm 4-cylinder diesel engine. With 18" alloy wheels, IQ Light Matrix LED headlights and styling bar. While the Amarok Life packs a solid 405 Nm of torque and an impressive level of safety including Blind Spot Monitoring and Adaptive Cruise Control.

The new Amarok-Master of versatility-register your interest now with your local dealer or at volkswagen.co.nz.



THECOUNTRY

Dairy farmers' big move down south

PROFILE: Manoj Kumar and Sumit Kamboj, 2021 NZ Share Farmers of the Year, have made their move to Methven – and yes, the grass is green down south but the weather is colder, writes **Kem Ormond**.

> If the names sound familiar, it's because I wrote about these brothers in The Country bumper edition. Manoj and Sumit, along with their staff were getting ready for the big move, from their hometown of Eketahuna, to a much larger operation down south in Methven.

> For anyone who can't quite pinpoint Methven, it is a small town in the Canterbury region of the South Island. It is located near the western edge of the Canterbury Plains, 35km north of Ashburton and 95km west of Christchurch.

> Five months have passed, and I was keen to see how they were coping with the new challenges that were awaiting them.

> Sumit said it had been busy, a bigger operation with a very wet

> "We have a much larger herd, a lot of learning to do, but we are loving it. The farm owners have been very supportive, and we feel very lucky to be given such a free range as to the



Manoi Kumar and Sumit Kamboi with their team in Methven.

running of this property," he said.

"We arrived to a very well set up operation on 540 hectares with two 50-a-side milking sheds, lovely flat self-draining pasture with similar sized paddocks, which makes it an easy walk for the cows to get milked."

The brothers have gone from milking 780 cows to a herd of 2000. With no road crossings, no underpasses to navigate and flat paddocks, their herd may be larger but their operation, easier. Plus, drier underfoot, 8-900ml in Methven compared to 2000ml on average in Eketahuna.

I asked Sumit what they missed from their time in Eketahuna. His reply was their friends, neighbours and all the great people they dealt with in Eketahuna was what they missed the most.

Technology plays a large part in enabling the brothers to achieve optimal productivity and efficient management. Using the Allflex dairy cow monitoring system, they can get the

benefits across the three pillars of dairy management reproduction, health, and nutrition. The information they get back from

ning and the staff are enjoying their involvement with this technology. Milking takes them four hours in the morning and three and a half hours in the afternoon and the results have shown good improvement in

this system helps greatly with plan-

productivity. Life has been so hectic since they arrived, they haven't even had a chance to meet their neighbours, but that will come shortly. The brothers

We have a much larger herd,

a lot of learning to do, but we

It's a long way from Eketahuna to Methven.

are both keen to join the local

Young Farmers Club and some of the various discussion groups in the area, but at present they are still getting settled into their new routines and helping their staff settle in also. They employ ten staff which includes a farm assistant, herd managers and

For two brothers who arrived in New Zealand 11 years ago with just two suitcases in hand, their sheer hard work and determination has got them to where they are today.

And what are the brothers aiming for in the future?

They are hoping that in three years they may be in the position to buy their own farm. So, keep your eyes on The Country, I may have another article to write about Manoj and Sumit and their road to farm owner-

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THE COUNTRY

A point of service difference

BOATING: Image Boats is a success story with a range of high-quality services

ased in Invercargill "Image Boats Ltd" has grown from humble beginnings into a major player in the alloy boat industry.

What started in 2000 as a vision by managing director Dean Wilkes, has grown from a backyard one-man band into the success story they are today.

Highly personalised

The point of difference with Image Boats, is that every boat that Image Boats produces, is custom made to be highly personalised to the specific requirements of each customer. With over 190 builds behind them now, they know the formula is right!

Image Boats offers everything for your boat under one roof:

- Complete design and build services
- Full customisation of our designs to your exact requirements
- Complete, entirely in-house service
- Custom built boat trailers to transport your vessel

Trusted team of contractors

With a trusted team of contractors which include an auto electrician,

A complete in-house service every time.

Complete design & build services



painter, upholsterer, cabinet maker and plumber, these specialised people take care of all the details and deliver exacting standards, so a quality product is assured.

They take care of all the details so you can focus on finding the perfect fishing locations and the fish!

Client relationships

Working closely throughout the design and build process, enables Dean to build a special relationship with his clients constructing a custom boat that reflects the client's wants and needs. The lines of communication are open throughout every stage

of the build through email, photos, phone calls and meetings.

As a customer, it is reassuring knowing your boat is in good hands.

A big investment needs a good guarantee

You are making a big investment when you have a boat built, so knowing that Image Boats proven hull designs carry a six-year warranty as your guarantee of quality and are stable for even the roughest of seas — as tested and proven time and time again on the notorious Foveaux Strait! They will be hard to be beaten on ride, quality or value for money.



Image Boats will turn your dream into a reality.

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transport vessel

Come and check them out

To see an Image Boat up close, watch for them as they take their annual Christmas tour around the South Island – a Wilkes Family Tradition for the past 19 years where all six members live onboard for a month. Not only is it a great family holiday, but it also shows the versatility of a boat being able to comfortably house a large family for a month. The dates and locations are advertised as the 8.5m "Demonstrator" model is available for viewing and test drives.

Check out their travel blog

A great way to see the performance of their boats is by watching their Facebook page as it expands into a travel blog over this period as many followers are interested in the areas visited and the historical detail, great fishing spots and ideas for their own family vacations.

Dean, Stacey, and the team know that the boats they build are not only floating holiday homes as well as the perfect fishing platform, but they are also often a lifelong dream come true. Comfort and safety go hand in hand at Image Boats. If you want to see your dreams become a reality, don't hesitate to contact them today."

On a final note

At the recent DHL Export Awards 2022, Image Boats was thrilled to be selected for the Business Export Mentorship Programme. Image Boats is excited to begin showcasing their custom made 6-11m alloy boats to the world!



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Rural interest rates impacting the Rural Property Market early spring 2022



South Island rural real estate spring sales (August to October) equal \$183m by value and 65 by number of farm sales, 44% down on the same time last year. If anybody wants to quantify the rural real estate impact of the OCR moving from 0.25% to 3.5%, it looks like 49 fewer South Island farms sold from August to October compared to the same time last year.

The median price is now \$22,400/ha across 65 South Island sales, back 8.2% on last season's early spring farm sales at 114 for a median of \$24,400/ha. Dairy farm sales this spring have been slow to start and quite out of step with the quality of the inventory on the market. Dairy sales to the end of October (only two) have been slow to start this season, however, we still expect to see a positive upward shift in dairy sales in the run up to Christmas.

Farmer borrowing costs have doubled over the last 12 months, and while access to rural credit has improved, the cost of it is weighing heavy on farmer and grower attitudes towards taking more risk. Last season was the reverse, where rural debt had never been cheaper but accessing it was not a given.

Our view mirrors the NZAB team's recent Farmers Weekly commentary on the Reserve Bank of NZ's credit conditions survey, "that the acute rising cost of interest is creating a negative demand for rural credit." We would also add limited early-season inquiries from potential buyers.

Many other factors are currently impacting farmer confidence, like He Waka Eke Noa, but these challenges are much longer term and unlikely to stop a well-capitalised sheep and beef farmer from buying the neighbouring farm on the boundary. Principally, we sense most farmers share Keith Woodford's view that our primary industries, in general, and pastoral industries, in particular, are fundamental to NZ's economic well-being.

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The current policy settings must change and align with a shared national commitment to reduce GHG sustainably. Farmers alone can't carry the burden of the current 'net zero' formula and the catastrophic future impact on rural land use. Not least because we are already at peak livestock production with critical supply chains and exports already in the balance.

The opportunity for purchasers to negotiate terms to reflect the current economic reality is obvious. The last decade has seen borrowed money get cheaper and cheaper. The current reversal of that theme is not short-term; anything that takes time to get there will take time to unwind. In relative terms, current borrowing is still very affordable when we look back. Property Brokers' approach is time proven. Where there is a genuine buyer interest in a farm, getting parties to the table and undertaking due diligence is paramount. We have vendors committed to a sale process and for those buyers prepared to operate this side of Christmas, finding value, as the market resets is the opportunity.

Equally, vendors that can read the market tea leaves and the forward outlook will appreciate that none of us control the market. As more inventory comes forward in 2023, the opportunity to make a contract work and a realistic return in today's dollars is all part of making a decision. Money in the bank now means something again. The default option to continue farming for another three to five seasons and wait for the market is likely to carry a bigger risk than the experience of the last three-plus seasons.

South Island rural real estate investment has historically demonstrated some of the best returns on capital nationally, and we don't see that changing anytime soon.

Conrad Wilkshire, GM Rural for Property Brokers Ltd conrad@pb.co.nz

\$180,000,000 \$160,000,000 \$140,000,000 \$120,000,000 \$100,000,000 \$80,000,000 \$40,000,000 \$20,000,000

No of Sales '21 No of Sales '22 Sales Value '21 Sales Value '22

South Island Rural Sales 20ha+, Aug - Oct 2021 vs 2022

South Island Rural Sales 20ha+, Aug - Oct 2022

Sale Category	No of Sales	Sales Value
Grazing	24	\$43,889,000
Finishing	20	\$35,426,000
Arable	5	\$36,376,849
Dairy Support	5	\$13,770,000
Horticulture	4	\$12,763,600
Dairy	3	\$28,500,000
Specialist Livestock	3	\$9,677,708
Lifestyle Blocks	1	\$3,100,000
Total	65	\$183,503,157

South Island Rural Sales 20ha+, Aug - Oct 2022

Region	No of Sales	Sales Value
Marlborough	7	\$17,860,600
Tasman	4	\$6,005,000
West Coast	7	\$5,699,000
Canterbury	19	\$91,802,557
Otago	10	\$33,235,000
Southland	18	\$28,901,000
Total	65	\$183,503,157

THECOUNTRY

QEII contributes to conservation

CONSERVATION: Trust helps private landowners protect open space and habitats

> t's likely that you've seen QEII referenced before. Whether it is in relation to a swimming pool in Christchurch, a park on the Kāpiti coast, or involving royalty, it's an acronym that strikes familiarity.

> In the rural and conservation sectors, QEII is known to be short for The Queen Elizabeth II National Trust, a long-standing, well-respected contributor to habitat conservation in Aotearoa New Zealand.

> Originally formed by farmers in 1977, the name is becoming more familiar, with the Trust recently reaching the milestone of protecting 5000 areas of land with an Open Space Covenant, in partnership with landowners. This adds up to more than 180,000 hectares of protected private land across the country, which is about the same area as the North Island's three National Parks combined.

With almost 70 per cent of New Zealand in private land ownership, QEII Open Space Covenants are the most efficient and effective way to help protect the habitats of threatened animals and species, reverse the decline of indigenous biodiversity

and preserve our history.

Open Space Covenants are bespoke legal agreements between QEII and a landowner that relate to a specified, surveyed piece of land. They create permanent constraints on what can and can't be done on that land. The covenant is attached to the land title and remains in place in perpetuity, even if properties have a change in ownership.

Most frequently, covenants protect land with high biodiversity but also extend to landscape, cultural and

historical values. Protected biodiversity areas range from primary forest systems, rare coastal habitats, grass and tussock lands, wetlands, riparian zones, and streams and the size of a covenant can range from small backyard patches to huge swathes of high country.

Many Open Space Covenants protect primary or secondary native forest. Because much of New Zealand's public conservation estate is in high and inaccessible country, those protected forests on private land are often very important because they are the last remnants of largely lost lowland ecosystems - especially so for things like swamp forests or dune forests.

Demand for covenanting has grown and the organisation continues to be busier than ever, establishing covenants is a core part of the work that QEII does, however they also support covenantors with their commitment to ongoing stewardship of protected areas, to ensure that conservation outcomes are enduring for generations to come.

In 2021, QEII secured additional funding for four years, through DOC's Jobs for Nature programme. This work will be delivered through three projects, supporting conservation on private land. This includes the "Protecting the Gains" project, where QEII will work with landowners who have $received \, funding \, through \, the \, Jobs \, for \,$ Nature programme to help secure enduring outcomes and two projects supporting existing QEII covenants a deer exclusion project and a project to enhance stewardship of rare and threatened species in covenants in the Eastern South Island.

OEII sees its relationships with landowners as key to its success. The

A view of Ngaio **Bush**, protected

Trish Anstis in Hawke's Bay.

Find out more about

OEII on its website

29 regional representatives based all over the country are instrumental in creating and fostering lasting relationships with landowners as they are typically the main contact.

Reps will meet with landowners and work alongside the head office $team\,on\,proposals\,for\,new\,protection$ and monitor established QEII covenants every other year. These monitoring visits allow them to check the condition of the protected values and raise any threats or management issues, while also congratulating and encouraging the landowners' achievements and offering guidance where it is sought or needed.

Looking to the future, QEII plans to continue to inspire and help private land conservationists bring their ambitions to reality by establishing new covenants, adding to the growing number of protected areas and to help landowners to look after and enhance what they have

protected.

It's a Kiwi and global sports phenomenon

GOLDEN SHEARS: It's set

to inspire an era of potential new champions, writes **Doug Laing**



ne of New Zealand's most successful true Kiwi events will be up and running post-Covid ready to inspire an era of potential new champions again early in the New Year.

The Golden Shears International Shearing and Woolhandling Championships will be held on March 2-4, in the same Masterton War Memorial Stadium as it's been held every year (apart from two Covid cancellations) since more than 300 shearers competed in 1961. It was barely two years after first seeds were sewn as YFC members sought ideas on raising a few pounds and shillings to improve facilities for its shearing at the A and

While it's the most well-known shearing sports event in the world, it is one of almost 60 fixtures on the Shearing Sports New Zealand calendar, which started with the New Zealand Merino Shears in Alexandra at the start of October and ends with the Royal Easter Show in Auckland and the Mackenzie A and P Show's New Zealand Lambshearing Championships in Fairlie in April.

Other major events along the way are The Otago Shears in Balclutha and Southern Shears in Gore in mid-



February and the New Zealand Shears in Te Kuiti a week before Easter, all stand-alone events, while about 40 events during the season take place at A and P shows.

The Golden Shears has a global reputation, inspiring the establishment of the Golden Shears of Great Britain at the Royal Bath and West Show in England in 1963, annual transtasman shearing tests, which started in 1974, and the Golden Shears World Championship, first held in England in 1977 and since held in nine countries around the world. Miss Wairarapa, the area's representative in the Miss New Zealand contest, was actually Miss Golden Shears.

The Golden Shears in Masterton has staged four world championships four times, and in March, its Open shearing final — shearing's equivalent of Wimbledon – will decide one of the two New Zealand machine shearers for the 2023 Championships in Scotland, while a selection series final will decide the two to defend the woolhandling teams title won by New Zealand in France in 2019.

There will also be the home legs of the transtasman shearing and woolhandling series, and shearing's Former world champion woolhandler Joel Henare is going for a ninth consecutive win at the Golden Shears.

Inset, regular **Golden Shears** winner Rowland Smith in action.

Photos / Pete

Ironman equivalent, the final of the Wrightson Vetmed National

Shearing Circuit, in which six of New Zealand's best multi-wools shearers shear 15 sheep of five wool types, including the big and bustling merino of the South Island. It incorporates the McSkimming Memorial Triple Crown, first presented in 1973. These features are, however, just parts of the championships comprise about 25 events,

with shearing and woolhandling for all grades from Novice to Open.

The daytime sessions have been known to be packed by groups of children, and historically cruise passengers sent over the Remutaka Hill for a sunny day in "the" Wairarapa while berthed in Wellington.

By Saturday night the stadium, still packs its punch, with the circuit shearing final, the transtasman shearing test, the Open Woolhandling final and the Open Shearing final. It's been won by New Zealand world champions Snow Quinn, (Sir) David Fagan, Paul Avery, Cam Ferguson, John Kirkpatrick and Rowland Smith, and New Zealand-based Scotland international and World champion Gavin Mutch. The stadium is part of the town's recreation and pools complex, , but the real attraction is Open shearing final - a frenzied six men race, side-by-side, maintaining the highquality wool harvesting demands, while each clipping 20 sheep at about 50 seconds each.

³⁸ **望 Farming ▶**

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EFFICIENCY

fter 40 years of planting And nurturing our food forest there is always something to harvest at Free Range Farm.

In the vegetable garden the rainbow beet and spinach are needing to be picked as well as salad greens, the first delicious crunchy cauliflowers and an abundance of large spring onions and parsley to add flavour and zest to many dishes.

In the herb garden the calendula, commonly called pot marigold, is flowering abundantly. That means it's time to gather the orange blooms to store in the freezer for making batches of skinhealing balms in the months ahead. Calendula (calendula officinalis) is one of the most versatile plants you can grow at home and was one of the first herbs I planted. It has been used for centuries, both internally and topically, to help heal all skin ailments such as



HARVESTING FEATURE

Here Sheryl shows off the produce from her spring garden - beet, spinach, cauliflower and salad greens. PHOTOS: SUPPLIED

wounds, burns, and rashes and is antiseptic and soothing. You can also use the petals to flavour and add colour to soups and salads to support immunity, digestion and detoxification. Note, there are many hybrid marigolds which have less medicinal value.

In the orchards and beyond, the elder trees (sambucus

nigra) look spectacular covered in white fragrant bunches of tiny flowers They provide elderberries in summer and elderflowers in late spring. We are about to make a batch of elderflower champagne and elderflower cordial to enjoy with family and friends over the summer holidays. There are plenty of recipes available



In the herb garden the calendula, commonly called pot marigold, is flowering abundantly.

online for making your own drinks using honey, sugar and stevia along with lemons and cider vinegar.

Besides making delicious drinks elderflowers have many medicinal properties. As healing herbs they can help support healthy respiratory systems, are and known for their antiinflammatory properties as well

as for a useful tonic for those suffering from allergies. The flowers are only available for a short time each year and can be frozen or dehydrated for use all year round. By harvesting and freezing these seasonal ingredients we can further process them when time permits throughout the months ahead.

MOBILE SEED CLEANING + SCREENING

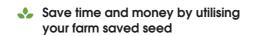
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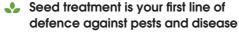


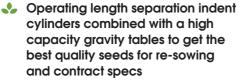


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Pathfinder farmer - confident to cut back on nitrogen use



South Canterbury arable farmer Andrew Darling says an onfarm trial where wheat yields were unchanged despite a significant drop in nitrogen rates has given him the confidence to continue to cut back.

Darling told a Foundation for Arable Research field day on his farm that he was looking to become more sustainable in terms of crop inputs even before the sharp rise in nitrogen fertiliser prices, which have at least doubled in the last two years.

Darling and his wife Amy lease Poplar Grove Farm at Kingsdown, just south of Timaru, from his parents Warren and Joy Darling. Darling is the fourth generation on the farm, made up of a 250 hectare home block and a 250ha leased neighbouring

property. The mainly dryland rolling downs property grows feed wheat, feed barley, oil seed rape, turf grass and sometimes sunflowers.

Nitrogen is now the farm's single biggest cost.

The Darlings have invested in tools and technologies including a Yara N-tester, a hand-held leaf N measurement tool used to identify the N requirements of plants. This is used as a calibration tool for sensor cameras on the roof of their tractor, which automatically varies nitrogen application rates depending on a crop's density and greenness. The Darlings have also been 1ha grid soil sampling for the last seven years.

For the 2020 harvest, the Darlings relied on the N-tester for applications on two replicated strips in a wheat crop, with the remainder of the paddock receiving a standard application.

The crop yielded 12t/ha across the paddock, regardless of N application rate. Grain protein was also the same despite 120kg of urea/ha less being applied in the trial area.

The reduced rate areas used 16.5

units of N per tonne of yield compared with 21 units under a standard application.

Buoyed by the results, the Darlings have done the opposite this year. Instead of trialling 2ha, they have applied N under variable rate over the whole farm, apart from a few strips in wheat and barley giving a standard blanket application as a comparison.

FAR senior researcher cereals Jo

Drummond told the field day that farmers and growers associate reduced N rates with reduced crop yields and profits, but it is possible to reduce N without reducing profit. It was a matter of keeping a crop green "enough" by understanding the supply and demand requirements, knowing what N was in the soil now and what would mineralise through the course of the season.



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Arable farmer Andrew Darling is using information from a hand-held leaf nitrogen measurement tool to help cut back applied nitrogen in his crops. PHOTO: SUPPLIED



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Chief executive of Align Farms Rhys Roberts says his operation has recently embarked on a new farming strategy, converting two of its five dairy farms to re-generative (regen) farming.

And he wants to share his experiences with the rest of us at a regenerative field day December 7, 10 am – 1.30 pm at 2581 Hackthorne Rd, Westerfield.

"We will be sharing our data and learnings with plenty of time for questions. Attendees should be able to walk away from the day with an understanding of both the successes and failures with robust multi-year data to back it up," said Roberts.

The transition of Align's Claireview Farm to regen farming started last year with 20 per cent of grazed area converted to regen paddocks with another 30 per cent converted this year.

Another farm will begin its transition to regen this year and will

be operating 100 per cent regen by the end of 2024.

Roberts said there were about five principles that regen agriculture stood for "but for us, we increased the diversity of the pasture species so instead of just ryegrass and clover we added in chicory, plantain, and different types of grasses and clovers."

The paddocks were sprayed out and direct drilled, he said.

"Some we overs-sowed directly into the grass species. On highly compacted soils we used 15 to 20 different species and some with deep tap roots that penetrated to aerate the soil. But when this wasn't needed, we sprayed out or direct drilled into the soil or over-sowed existing pastures.

"The farm managed regeneratively hasn't seen any urea for three seasons now. That is a positive," he said.

"Productivity is reduced but it depends on what what you are trying to achieve. It's a matter of fine-tuning things."

He said it would take about five years to get any accurate data on regen farming however Align Farms was looking to take more of its land over to regen in due course.

"We have been doing this for about three years now. We publicize all our data live." Roberts said.



Instead of just ryegrass and clover we added in chicory, plantain, and different types of grasses and clovers: Rhys Roberts. PHOTOS: SUPPLIED





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Innovation the way forward for modern farming systems



Innovation is more important in modern agriculture than ever before. The ag industry as a whole is facing huge challenges, from rising costs of supplies, to a shortage of labour, and changes in consumer preferences for transparency and sustainability.

There is increasing recognition from agriculture corporations that solutions are needed for these challenges. In the last 10 years, agriculture technology has seen a huge growth in investment, with NZ\$120 billion invested in the last five years and NZ\$10 billion in the last year alone. Major technology innovations in the space have focused around areas such as indoor

vertical farming, automation and robotics, livestock technology, modern greenhouse practices, precision agriculture and artificial intelligence, and blockchain.

Farm automation

Farm automation, often associated with "smart farming", is technology that makes farms more efficient and automates the crop or livestock production cycle. An increasing number of companies are working on robotics innovation to develop drones, autonomous tractors, robotic harvesters, automatic watering, and seeding robots. Although these technologies are fairly new, the industry has seen an increasing number of traditional agriculture companies adopt farm automation into their processes.

New advancements in technologies ranging from robotics and drones to computer vision software have completely transformed modern agriculture. The primary goal of farm automation technology is to cover easier, mundane



Livestock technology can enhance or improve the productivity capacity, welfare, or management

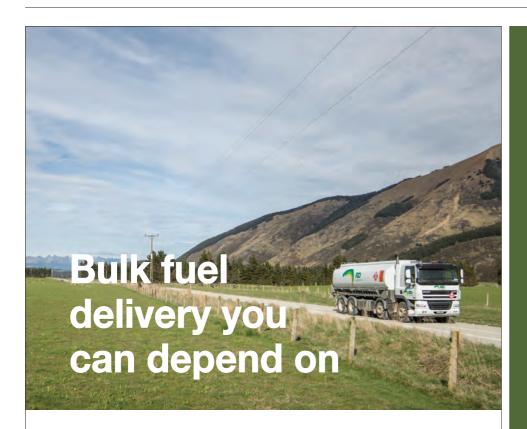
tasks. Some major technologies that are most commonly being utilized by farms include: harvest automation,

autonomous tractors, seeding and weeding, and drones.

Farm automation technology addresses major issues like a

rising global population, farm labour shortages, and changing consumer preferences.

Continued on P42



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From P41

Livestock farming technology

The traditional livestock industry is a sector that is widely overlooked and under-serviced, although it is arguably the most vital. Livestock provides muchneeded renewable, natural resources that we rely on every day. Livestock management has traditionally been known as running the business of poultry farms, dairy farms, cattle stations, or other livestockrelated agribusinesses.

Livestock managers must keep accurate financial records, supervise workers, and ensure proper care and feeding of animals. However, recent trends have proven that technology is revolutionizing the world of livestock management. New developments in the past 8-10 years have made huge improvements to the industry that make tracking and managing livestock much easier and data-driven. This technology can come in the form of nutritional technologies, genetics, digital technology, and more.

Livestock technology can enhance or improve the productivity capacity, welfare, or management of animals and livestock. The concept of the 'connected cow' is a result of more and more dairy herds being fitted with sensors to monitor health and increase



Farm automation, often associated with "smart farming", is technology that makes farms more efficient and automates the crop or livestock production cycle.

productivity. Putting individual wearable sensors on cattle can keep track of daily activity and health-related issues while providing data-driven insights for the entire herd. All this data generated is also being turned into meaningful, actionable insights where producers can look quickly and easily to make quick management decisions. Precision agriculture

Agriculture is undergoing an evolution - technology is becoming an indispensable part of every commercial farm. New precision agriculture companies are developing technologies that allow farmers to maximize yields by controlling every variable of crop farming such as moisture levels, pest stress, soil conditions, and microclimates. By providing more

accurate techniques for planting and growing crops, precision agriculture enables farmers to increase efficiency and manage costs.

Precision agriculture companies have found a huge opportunity to grow. A recent report by Grand View Research, Inc. predicts the precision agriculture market to reach NZ\$80 billion by 2025.

The emerging new generation of farmers are attracted to faster, more flexible start-ups that systematically maximize crop yields.

Blockchain

Blockchain's capability of tracking ownership records and tamper-resistance can be used to solve urgent issues such as food fraud, safety recalls, supply chain inefficiency and food traceability in the current food system. Blockchain's unique decentralized structure ensures verified products and practices to create a market for premium products with transparency.

Food traceability has been at the centre of recent food safety discussions, particularly with new advancements in blockchain applications. Due to the nature of perishable food, the food industry as a whole is extremely vulnerable to making mistakes that would ultimately affect human lives. When foodborne diseases threaten public health, the first step to root-cause analysis is to track down the source of contamination and there is no tolerance for uncertainty.

Blockchain can be used to solve urgent issues such as food fraud, safety recalls, supply chain inefficiency, and food traceability in the current food system.

Artificial intelligence

The rise of digital agriculture and its related

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technologies has opened a wealth of new data opportunities. Remote sensors, satellites, and UAVs can gather information 24 hours per day over an entire paddock. These can monitor plant health, soil condition, temperature, humidity, etc. The amount of data these sensors can generate is overwhelming, and the significance of the numbers is hidden in the avalanche of that data.

The idea is to allow farmers to gain a better understanding of the situation on the ground through advanced technology (such as remote sensing) that can tell them more about their situation than they can see with the naked eye. And not just more accurately but also more quickly than

seeing it walking or driving through the paddocks.

Remote sensors enable algorithms to interpret a paddocks environment as statistical data that can be understood and useful to farmers for decisionmaking. Algorithms process the data, adapting and learning based on the data received. The more inputs and statistical information collected, the better the algorithm will be at predicting a range of outcomes. And the aim is that farmers can use this artificial intelligence to achieve their goal of a better harvest through making better decisions in the field.

Interested in this? This article just touches the surface - there is plenty more info on Google.



emote sensors enable algorithms to interpret a field's environment as statistical data that can be understood.

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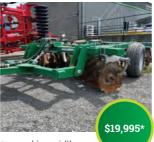


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Water management in the OECD - where are we at?

IRRIGATION AND WATER FEATURE

Water management is a major political issue in many countries and agriculture plays a fundamental role in this

Population growth, urbanisation, and rising demand for food increase pressure on water resources. Yet the availability of water resources is increasingly at risk due to climate change, which in turn has resulted in a rising frequency of extreme water events such as droughts and floods.

Agriculture is affected by these events because it relies heavily on water and, in most countries, constitutes the largest sector in terms of water use.

All OECD countries have developed institutions and laws governing water access, allocation, and pricing, as well as a set of policy strategies and instruments to address broad water management goals covering water resources, its quality, and ecosystems protection.

Agricultural water resource management covers a wide range of agricultural systems and climatic conditions across OECD countries. In many countries, rain-fed agriculture dominates, but in areas susceptible to variable precipitation or water deficits, irrigation is used to supplement periodic shortfalls. In arid areas, crop production may be largely dependent on irrigation.

Îrrigation water draws mainly on fresh surface water and groundwater, and to a lesser extent on recycled wastewater and desalinated water. The proportions by which these water sources are used vary across countries.

The degree of water stress, an indicator reflecting water resources availability, varies a great deal among OECD countries from very low (e.g. Canada, Latvia, New Zealand, Slovak Republic, Sweden) to high levels (e.g. Israel, Italy, Korea, Spain, Belgium), reflecting the diversity of conditions in terms of water withdrawals and resources in the OECD area.

National water stress refers to the intensity of freshwater use,



In most countries, agriculture constitutes the largest sector in terms of water use.

which is measured as the ratio of total freshwater abstractions to total renewable water resources in the country. A ratio below 10 per cent is typically considered to be low water

stress; moderate when between 10 per cent and 20 per cent; medium-high when between 20 per cent and 40 per cent; and high when above 40 per cent.

The water stress indicator

has trended slightly downwards in the majority of OECD countries since 2005 due to reductions in total water abstraction. Decreases in water stress are more notable for



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several countries with medium and high initial levels of water stress – Israel (7 per centage points), Korea (1 per centage points), Belgium (2 per centage points) – and for countries with moderate water stress such as France and Germany (both 2 per centage points). Agriculture significantly contributes to national water stress in several OECD countries, particularly those with a relatively large irrigated sector.

Since 2005, agricultural water abstraction has declined in about two-thirds of OECD countries, and agricultural

water abstraction in the OECD area declined by 0.4 per cent annually. The stronger declines are observed in Australia (-9.4 per cent), France (-7.8 per cent), United Kingdom (-5.4 per cent), United States (-1.9 per cent), and Greece (-1.4 per cent).

By contrast, agricultural water abstraction increased by about 1 per cent or more in New Zealand, Turkey and Mexico, while countries such as Germany and the Czech Republic had large increases, 13.6 per cent and 8.5 per cent, respectively.

Continued on P46



The availability of water resources is increasingly at risk due to climate change.



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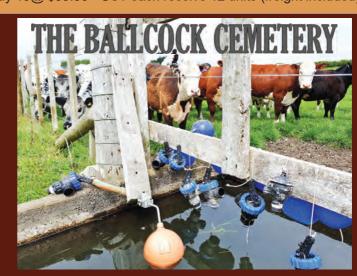
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While agricultural water use is decreasing, the share of agricultural water abstraction from groundwater continues to increase in several OECD countries particularly in France, Germany, Greece, and the Netherlands. This increasing pressure on groundwater resources is due primarily to the scarcity and instability of surface water resources.

In the longer term, factors such as higher food demand due to demographic and income growth, as well as a higher occurrence of extreme weather events propelled by climate change are likely to put more pressure on this resource, which in turn would affect the future resilience of agriculture to respond to water-supply shortfalls.

This problem is accentuated in several countries due to the relative weakness of groundwater regulations; groundwater is also more difficult to measure and monitor in practice than surface water. As indicated in OECD, better groundwater management policy combining regulatory instruments and economic and collective action is needed to overcome water stress challenges in agriculture.

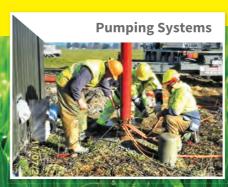


While agricultural water use is decreasing, water abstraction from groundwater continues to increase.

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