

CONTENTS

| | |
|---------------------------------|----|
| Message from the President | 2 |
| Message from the Minister | 3 |
| Summer Conference photos | 4 |
| Mycoplasma bovis | 5 |
| Agrecovery | 6 |
| Forage industry seeks R&D | 7 |
| Approved handler no more | 8 |
| Illegal animal medicines report | 9 |
| CropLife Asia | 10 |
| Apiculture NZ | 11 |
| Summer Conference speakers | 12 |
| New members | 18 |

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THE AGCARM NEWSLETTER

Innovation needs industry and government to join forces

By Agcarm Chief Executive, Mark Ross

Public-private partnerships in New Zealand are pursuing unique and speculative projects in plant science and animal health.

Agrichemical businesses operating in New Zealand are working with government to develop new and safer products for pest and disease control. These include solutions for managing biosecurity incursions such as PSA, Varroa mite and myrtle rust, along with tools for animal health.

New Zealand's agricultural innovations come from both the public science community and the private research sector. They require an abundance of time, resources and financial uncertainty. Research priorities for both sectors depend on a complex mix of factors, including benefits to farmers, consumers and the environment, as well as a return on investment.

To help farmers meet the challenge of feeding a growing population, while at the same time preserving soil, water and natural habitats, environmentally-friendly innovative solutions for pest and disease control are needed more than ever before.

The private and public sectors can share knowledge and resources where it matters most – at the local level with our farmers in New Zealand and around the world - to achieve innovation.

For the government, this is an efficient way to bring timely and appropriate tools to local farmers.

Creating the right environment for successful partnerships requires

collectively addressing regulatory and legislative frameworks.

Government may need to alter restrictive regulations. There is no point developing new pest and disease control products if the regulatory systems prohibit them going to market.

Rising research and development costs, limited scientific expertise and the need for more efficient agricultural systems, makes it critical for governments and companies to work together.

The need to innovate for mutual growth and benefit has never been greater. ■



A word from our new President

After six months in the Agcarm President's role, Dr Pauline Calvert told attendees at the Agcarm Summer Conference in February that it's a privilege to lead the organisation. She emphasised the importance of reflecting on how healthy the association is, what the future looks like and what opportunities there are.

Agcarm is extremely proactive in stakeholder engagement, Calvert says. It is "the bread and butter of what Agcarm does".



PRESIDENT, PAULINE CALVERT

"We're in really good shape," she says following a 30 percent increase in membership in the last 18 months.

Being a true kiwi, she is proud to represent not just large multinational companies, but also the smaller New Zealand and Australian companies, and people representing our industry.

The association has a credible reputation with stakeholders and Agcarm is welcome to the table. "We don't have to do that lobby group thing where we bang on the door. We're invited. We are credible and we are responsible."

Because of our strong industry representation, Agcarm is the obvious partner of choice to assist with policy consultation and the introduction of change.

"Our strength and our value comes from the resource that is in this room," she says, referring to the collective of members at the conference.

"You would be hard-pressed to find another organisation in New Zealand that has such a large representation of our industry. I'm exceptionally proud of that."

Calvert explains that driving innovation is a key strategy for Agcarm.

"We strive for change. We have to. We can't stand still."

There are always new challenges. It's more than just having a healthy business, we have a vested interest. Calvert says Agcarm shares a lot of common goals with stakeholders - we have an interest in developing sensible, risk-based regulations in New Zealand.

"We don't have to do that lobby group thing where we bang on the door. We're invited."

"We are credible and we are responsible."

When she started this journey, after the long tenure of a "very distinguished last president, Mark Christie," Calvert said: "It's business as usual for Agcarm." She quantifies this as being dynamic, evolving, credible, having a strategy and being future-focussed.

A challenge and a focus for Agcarm is connecting with the new government and maintaining a high level of engagement.

Change brings challenges, but also huge opportunities. Agcarm will review its strategic plan this year.

"The opportunities are endless as we seek to grow and engage."

We must make sure we're always relevant - looking ahead, not behind, says Calvert. We want to maintain our relevance and strive for excellence in those three key segments - healthy crops, healthy animals and healthy business. ■

A word from the Minister

By Hon. Damien O'Connor



DAMIEN O'CONNOR

Thank you for the opportunity to contribute to your newsletter and for your warm welcome in the November issue.

I wholeheartedly agree that at no time has it been more important to unite in environmental stewardship so that neither our economy nor natural assets are further damaged.

It's clear that New Zealand's ability to sustainably produce high-quality, nutritious, food for a growing global population is crucial to our economic future.

Reaching for value over volume we can continue to deliver what international consumers demand and in a way that leverages our competitive edge as quality food producers.

Innovation, science and research have significant roles to play. In the Coalition Agreement with New Zealand First we have set a target of hitting an R&D spend of 2 percent of GDP in 10 years. That's a 50 percent increase in R&D investment relative to GDP over that time and will make a significant contribution to improving our productivity.

As the world becomes a smaller place, greater pressure is placed on us to protect our economy from introduced pests and disease. Biosecurity is our number one challenge. A big factor in maintaining our competitive status is to protect New Zealand against biosecurity threats that might hit our farms, crops and produce. As the Mycoplasma bovis outbreak has shown, dealing with outbreaks is expensive and hard work for everyone involved. This year, I will push my government colleagues to commit more resources to our biosecurity safety net.

Talking to farming families, I've been encouraged by their ideas for the future and keenness to improve their operations where possible. This includes improving farming practices that reduce environmental impacts. Water sources are particularly vulnerable; stock access, soil erosion, fertiliser over-use, agrichemicals and rubbish disposal and nutrient run off can all affect water quality and ecosystems.

Farmers and producers are making changes and there is support in place: Excluding stock from waterways and riparian strip planting; the Farm Systems Change Project - sharing the knowledge of 20 of our best dairy farmers; and the Agrecovery scheme - established by the Agrecovery Foundation - of

which Agcarm is a trustee - for appropriate disposal of end-of-life agrichemicals and agrichemical containers.

New Zealand's primary products enjoy an excellent reputation, both with foreign regulators and consumers. This all doesn't happen by accident.

Our reputation is built on New Zealand companies producing high-quality, safe products and on MPI developing and implementing robust evidenced-based systems to ensure these products are safe, responsibly produced and environmentally sustainable. ■

Damien O'Connor

is the Minister of Agriculture, Biosecurity, Food Safety and Rural Communities. ■



Hon David Parker with Pauline Calvert



Opportunity to network outdoors



Summer conference February 22, 2018



Attendees get some fresh air



Full house!



Demonstration of the Agrecovery mobile shredder



Mark Ross and Simon Andrew discuss Agrecovery

Response to cattle disease continues

The Ministry for Primary Industries continues to work with its dairy and beef industry partners to control the spread of the cattle disease *Mycoplasma bovis* and attempt to eradicate it from New Zealand.

***Mycoplasma bovis* was first detected in New Zealand last July when cattle in the Oamaru area of the South Island were diagnosed with the bacterial infection.**

Since it was discovered the disease has been primarily found in animals in the south of the South Island on farms that are connected through animal movements.

The bacteria can cause a range of quite serious conditions in cattle that do not respond to treatment, including mastitis, pneumonia, arthritis and late-term abortions.

MPI Director of Response Geoff Gwyn says *Mycoplasma bovis* does not infect humans and presents no food safety risk to the public.

“*Mycoplasma bovis* is an animal welfare and productivity issue that poses no threat to people.”

Mycoplasma bovis is spread from animal to animal through close contact and bodily fluids, for example, mucus and also milking equipment. Calves can be infected through drinking milk from infected cows.

Farm equipment may play a role in spreading the disease, especially equipment coming into direct contact with infected animals such as AI instruments.

The disease is mostly spread through the movement of cattle from farm to farm, Gwyn says.

All infected properties and properties regarded as high-risk - those, for example, which are known to have received animals from infected farms - are under strict quarantine controls set out in Restricted Place Notices under the Biosecurity Act. These legal controls restrict the movement of stock and equipment on and off those farms to contain the disease and protect other farms.



For the most up-to-date information about the biosecurity response and advice on *Mycoplasma bovis* visit the [MPI website](#).

****What can farmers do?***

MPI says farmers and lifestyle block owners should continue to be vigilant for any signs of *Mycoplasma bovis* in their cattle, including:

- unusual mastitis in cattle that doesn't respond to treatment;
- arthritis in cows and calves;
- late-term abortion; and
- high numbers of calf deaths.

Farmers must continue to keep NAIT and other animal movement records up to date. NAIT is New Zealand's cattle and deer tracing system and compliance is required by law. From a biosecurity point of view, accurate record-keeping is vital to help track the spread of the disease and control it.

NAIT is also a useful tool for managing your own on-farm biosecurity by providing a complete history of brought-in animals.

MPI continues to encourage farmers and lifestyle block owners to follow good on-farm biosecurity practices. Tips and advice can be found on the ministry's website.

Dairy or beef farmers who believe they may have animals at high risk for *Mycoplasma bovis* infection need to make contact with MPI immediately. In particular, the ministry would like to hear from farmers who have bought cows or calves from the infected farms that have already been publicly identified.

Farmers can call MPI's confidential freephone - 0800 80 99 66.

For further information about *Mycoplasma bovis*, including advice about good on farm biosecurity practices, visit the [MPI website](#). ■

Agrecovery driving change to clear more farm waste

Rural recycling programme Agrecovery investigates sustainable long-term solutions to clear more waste from rural communities.

Rural waste project

In efforts to provide alternatives to burning, burying or storing rural waste, Agrecovery is partnering with soft-plastic recycling programme Plasback, to provide one-stop-shop recycling events for farmers in Matamata and Geraldine this month.

The events trial a more convenient way for farmers and growers to dispose of their waste and deter them from harmful practices.

Items for disposal include agrichemical and motor oil containers, unwanted agrichemicals, used motor oil and fertiliser bags. Silage and baleage wrap will also be collected from farms in the area within a week of the events.

These are an outcome of the New Zealand Rural Waste Minimisation Project, led by Environment Canterbury with funding from the Ministry for the Environment.

“Dealing with inorganic waste can be a challenge for farmers and growers. This project focuses on identifying alternatives to burning, burying and bulk storage on farms,” says Isla Hepburn, Environment Canterbury’s Environmental Quality and Hazards Senior Scientist.

“By providing a reliable and cost-effective one-stop-shop approach to rural waste, we will be helping farmers and growers to participate in rural recycling,” she adds.

An online portal, developed by Agrecovery, allows farmers to

Management update

Since developing its own management capability in July last year, Agrecovery has increased collection volumes by 40 percent from the year before, with 111 tonnes collected in the second quarter of 2017 and 167 tonnes collected year-to-date.

One priority is bringing more brands into the programme, to increase funding and level the playing field. Mandatory participation will make the programme easier to use for farmers and growers.

- 257 collections have been undertaken year to date.
- Four new sites opened this year in Hastings, Opunake, Ngatea and Morrinsville. Two more are opening in Tauranga and Cheviot this month.
- Training was provided at over 30 sites.

register for the event and provides more detail on preparing for it. The specific location was not publicised to avoid people turning up on the day, without booking one of the 100 available spaces.

“As always, we need to ensure that people have prepared their empty containers, taken the appropriate precautions, and advised us of what chemicals they’re bringing in for disposal,” says Agrecovery General Manager Simon Andrew.

“We have high ambitions to clear more rural waste by partnering with industry groups, product stewardship schemes and councils,” says Andrew of Agrecovery’s commitment to the issue.

South Canterbury field day

A field day for farmers on waste disposal was held at the Orari Estate on April 18.

The 40 participants were given an overview of the regulatory

environment around waste management and how to participate in rural recycling.

Among those who took part with Agrecovery were Plasback, Timaru District Council and Environment Canterbury. ■



■ Six tonnes of rural waste was cleared at the Matamata event.



■ A field day was held in South Canterbury to help farmers understand recycling options.



■ New Morrinsville site

Forage industry seeks R&D

PASTORAL INDUSTRY GROUPS HAVE JOINED FORCES TO UP INVESTMENT IN FORAGES, A MAJOR CONTRIBUTOR TO THE \$20 BILLION PASTORAL INDUSTRY.



To make forage grown on farms more profitable and sustainable, a new unified plan was developed to invest in research and development.

Expertise from research organisations, plant breeders, farmers and Agcarm contributed to a forage strategy. This was funded by Dairy NZ, Beef+Lamb New Zealand, the New Zealand Plant Breeding and Research Association,

the Foundation for Arable Research and the Fertiliser Association. The initial steering group overseeing the strategy evolved to an industry governance group.

This collaboration will improve the success of the industry both financially and environmentally.

The new strategic plan enables a unified structure and voice for the pastoral forage industry. ■

The strategy and discussion document are available on the NZ Plant Breeding and Research Association website.

Several short-term projects are underway, to:

- Agree on forage research requiring development and funding.
- Work with Government, industry and crown research funders to ensure funding and priorities align.
- Expand the Forage Value Index into sheep and beef regions.
- Create a more coordinated approach to biosecurity affecting forages.
- Work with Government to update regulations around gene editing to allow these innovative breeding tools in the plant breeding industry.

Approved Handler no more

The regulatory environment for using agrichemicals in the workplace has changed.

It's been six months since the use of agrichemicals in the workplace came under the management of the Health and Safety at Work Act, enforced by WorkSafe.

Businesses are now required to identify and assess the risks associated with agrichemical use and take steps to manage them. The regulations require every workplace to maintain an inventory of all hazardous substances present, the likely quantity on the site and the hazards associated with them. This inventory will be the first thing an emergency worker, WorkSafe auditor, or quality assurance auditor will ask to see. It's also the first step of the risk management process.

The most pertinent change for agrichemical users is the demise of the Approved Handler system. This is replaced by a Certified Handler scheme, but only for those using the most acutely toxic agrichemicals - hazard classes 6.1A or 6.1B.

There is also a very clear requirement for every business to provide training, information and instruction to ensure staff are competent in the safe use of agrichemicals. The EPA requires all users of very ecotoxic substances - hazard classes 9.1A, 9.2A, 9.3A, 9.4A - to be suitably qualified, for example, GROWSAFE certified.

GROWSAFE's certificates are changing.

On 1 January, the GROWSAFE Introductory certificate was replaced with two certificates:

- GROWSAFE Basic - for users working under supervision and first-time agrichemical users. This course provides practical, task-related knowledge with a focus on personal safety.
- GROWSAFE Standard - designed for those taking responsibility for a workplace or site and may have responsibility for managing or supervising others. This will prepare for the Certified Handler certificate as well as meeting EPA requirements.

All staff using agrichemicals should attend a GROWSAFE Basic course and at least one person from each workplace hold a GROWSAFE Standard certificate.

For further information on regulatory changes, new certificates and how to renew, visit www.growsafe.co.nz



Relationship with Trade Me proves fruitful

Several illegal products were removed from auction site Trade Me in the last few months - following requests by Agcarm - due to the high health and safety risks they pose.

These items include unregistered products, labels not meeting

New Zealand standards, products decanted into plastic containers with no labels, and restricted products requiring the seller to be an approved handler.

Agcarm appreciates the swift removal of products by Trade Me. ■

ILLEGAL ANIMAL MEDICINES A GROWING CONCERN - REPORT

Illegal veterinary medicines report estimates annual global losses to legitimate companies at between USD \$1-2 billion, and warns of a growing black market for pet drugs.



Illegal veterinary medicines are present in both developed and developing countries, and have negative effects on human food safety and security, antimicrobial resistance (AMR) and control of animal-borne disease, the report by global animal medicines association HealthforAnimals states.

These medicines include counterfeit, falsified and unregistered products, and unapproved parallel imports. Compounded pharmaceuticals and illegal autogenous vaccines - when not manufactured or used appropriately and according to regulations - are also included.

Continuing rapid growth in online buying and selling of products and a parallel growth in international trade - especially of small packages - has created opportunities for trade in illegal veterinary medicines, according to the authors.

This affects all regions, including major markets like the United States and European Union - where the main issue is purchasing illegal pet products online, including illegal internet pharmacies.

The reports findings include

- A conservative estimate for annual global losses of USD \$1-2 billion.
- Widespread and large use of illegal veterinary medicines in the developing countries of south-east Asia, India, Africa and Latin America.
- A growing black market of drugs for pets, particularly in the EU and US.
- Illegal veterinary medicines present in both developed and developing countries, and with negative effects on human food safety and security, AMR and control of animal-borne disease.
- Illegal veterinary medicines, likely to contribute to AMR development, where sub-therapeutic doses of an active pharmaceutical ingredient are used for animals.

In developed countries, represented by the US, Canada, EU, Australia and New Zealand, the most important illegal veterinary medicines are for companion animals - equines, cats and dogs.

Sales of illegal medicines in New Zealand are insignificant. Agcarm alerts auction sites such as Trade Me when such listings are found and they are removed instantly. At the border, the extent of illegal animal medicine imports is unknown.

In the battle to keep safe and ensure effective treatment of medicines, animal owners are urged to purchase from reputable manufacturers. The government must also take action against illegal medicines. This could include forming a joint taskforce with industry to develop initiatives to ensure that illegal animal health products are identified and offenders prosecuted.

In the US and Canada, this is dominated by compounded pharmaceuticals. Of greatest concern to companies and regulators are those produced from bulk active pharmaceutical ingredients.

[Read the report](#) ■

AGCARM DISCUSSES AGRICULTURE IN ASIA

Crop Life Asia leading sustainable food supply



CropLife Asia's 2018 Annual General Meeting brought plant science industry leaders from across the Asia-Pacific region, and a host of food value-chain stakeholders. It provides a platform for agricultural experts to share insights on ensuring a safe and sustainable food supply in Asia as well as global and regional best practices.

In March, Agcarm Chief Executive, Mark Ross attended the Singapore forum, which discussed food security, agricultural sustainability and the role of plant science across the region.

The world's population is estimated to rise to around 10 billion inhabitants

by 2050. Ensuring a sustainable, safe and nutritious food supply is one of the world's greatest challenges. This is pronounced in Southeast Asia where critical factors suggest a deteriorating landscape. Just last year, the Food and Agriculture Organization (FAO) of the United Nations released findings that food security conditions had worsened in more vulnerable parts of the world – including South Eastern and Western Asia. Contained in the FAO data were troubling statistics on the increase of undernourished people – up from 777 million in 2015 to 815 million in 2016.

The plant science industry of Asia

remains steadfast in supporting its farmers to grow more food, and ensuring technology is used responsibly in that pursuit.

Asia is home to the world's smallest-sized farms and the largest number of smallholder farmers. It's estimated that 85 percent of the world's 525 million smallholder farmers live and work within the continent – about 100 million in Southeast Asia alone. With fewer resources and more unique challenges to mitigate - such as access to technology, landholder rights, finance availability, and climate change - these farmers face a daunting task.

Feeding more people with greater efficiency, fewer resources, and less environmental impact is a worldwide issue. Along with Agcarm, the CropLife network remains committed to working with food and agriculture stakeholders to ensure our farmers have access to the modern tools and technology they need. The advancements of Asia's plant science industry are providing invaluable tools for the region's smallholder farmer toolbox. These technologies allow farmers to increase their yields, use fewer resources, and minimise the impact on the environment.

Without crop protection products, almost half of the world's food would be lost to pests and disease. The protection they provide isn't limited to the field – they help prolong the viable life and prevent post-harvest losses of crops while

in storage as well. With horticultural land being converted for other uses, these products help farmers grow more on less land.

The attendance of CropLife Australia and Agcarm – representing New Zealand's crop protection industries, allowed experiences to be shared around innovation, regulatory engagement and environmental stewardship.

Common requirements include consistent resistance management strategies, biotechnology and improved stewardship. Country representatives were also concerned about unsatisfactory performance from regulators and an increase in the use of counterfeit products.

The meeting also highlighted the need to communicate the benefits of our industry to stakeholders and consumers.

The New Zealand crop protection industry is viewed as a leader in advancing the productive agricultural sector. Its contribution ensures that our food is safe, pest free, and sustainable. ■



Delegates at Croplife Asia AGM



KARIN KOS

Apiculture New Zealand - the honey and bee industry's national organisation - reached its second-year milestone in April this year.

Over those two years we have grown our broad membership base which includes commercial and non-commercial beekeepers, packers and exporters, affiliated clubs and associations, as well as landowners and other stakeholders in the industry. Today our membership represents around 50 percent of all beehives - over 400,000 hives - accounting for over 9,500 tonnes of exportable bee and honey products.

The vision for our industry is “a vibrant and growing contributor to New Zealand’s economy, nationally respected and internationally recognised”. With the phenomenal growth experienced over the past ten years - largely because of strong international demand for New Zealand manuka honey - our opportunity and challenge is ensuring that growth is sustainable over the long-term.

To do that Apiculture New Zealand (ApiNZ) is focused on three key priorities. The first is strengthening biosecurity and research that underpins bee health.

Our industry depends on good bee health and - while we undertake a number of research activities on behalf of members - we are currently working towards a Government

Industry Agreement (GIA).

A GIA will put us at the decision-making table with government and other primary industry sectors when biosecurity decisions affecting our industry are made by these groups. It also provides the forum and support for our industry to proactively develop readiness and response operational plans on key pests and disease threats.

The second is to strengthen consumer trust and market confidence in New Zealand honey. New Zealand’s honey and honey bee-related products are internationally recognised for their premium quality, with strong international demand lifting average export prices over the last ten years. The Ministry for Primary Industries’ recently-released manuka honey science definition puts

a stake in the ground around defining manuka honey from New Zealand, but there is also the opportunity to look at promoting other native monofloral honeys.

The third is to protect the intrinsic value of industry assets, not just the tangible things like biosecurity, but also intangibles like our reputation. For example, we introduced the New Zealand Beekeeper Code of Conduct that sets out how our members support good beekeeping practice in line with proven and ethical standards in working with bees and any activity associated with apiculture and maintain good relations among all stakeholders. We are also keen to lift industry skills and have been working on an apprenticeship programme for beekeepers, due to launch this year.

Two years has gone by very quickly and we have good foundations in place through ApiNZ, acknowledging that we are still a formative industry. We need both ongoing government support to manage growth sustainably, but equally we recognise the need to invest in our own future. For this reason, ApiNZ will this year be seeking a mandate for a commodity levy to help fund key areas like biosecurity and bee health, more targeted funding for research and development of new opportunities for growth. ■



Karin Kos is the Chief Executive of Apiculture New Zealand

Prevailing themes from the notable networking event included robotics, land use change, the environment, right through to chickens, biopesticides and an economic outlook for the primary industries.



Hon David Parker

The Hon David Parker informed conference attendees that a healthy environment is “central to what this government is going to achieve”.

“I believe we can have both a clean environment and economic prosperity and it is businesses like yours that can and do contribute to a thriving, sustainable, high-value export-led economy, one that creates jobs, strong communities in the regions, without sacrificing the environment.”

“I’m really interested in this intersection of technology and land-use,” because, he says, it’s the “key to sustainable output”.

“I particularly value your environmental stewardship and I recognise the importance of your contribution to the productivity of our farm systems – from horticulture to livestock.

“As your chief executive said in your November newsletter: ‘At no time has it been more important that the rural sector and

environmentalists come together to develop future goals that work for all of New Zealand’. That message is music to my ears.”

He acknowledged the efforts to encourage best practice through the Agrecovery rural recycling scheme. “I’m pleased to see the agrichemical industry leadership in its recovery of end-of-life agrichemicals and containers. I’m aware that not all agrichemical companies have joined the scheme. Non-members can sell their products cheaper into the market if they don’t have to pay the levy. We are happy to address issues such as that.”

In our small economy, trade is important. “We don’t make cars or computers, mobile phones, pharmaceuticals, or a lot of the agrichemicals that we use in NZ to pay for those things. We’ve got to sell as much as we can overseas. Free-trade agreements help us get access and minimise the amount that we pay.”

He says the government carried New Zealand “with less discontent” through the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) by changing some “really important things” in it including narrowing investor dispute clauses which give multinationals the right to sue the NZ government at an overseas tribunal.

“We’re clamping down on overseas ownership of farms and banning overseas buyers from owning

houses. With those changes, we’ve managed to get CPTPP across the line.”

Beef exports to Japan dropped by 38 percent due to Australia’s agreement. Similarly, there’s competition from Chile for kiwifruit.

“This agreement fixes that. It also gives us a free-trade agreement with Canada and Mexico.”

The government wants to reward people who reduce their greenhouse gas emissions. Parker adds that most agricultural emissions won’t come under the emissions trading scheme.

“95 per cent of their emissions will be free: They will be paid for by others effectively. The 5 per cent being charged will be collected at the processors.

“If a farmer opts in and reduces their emissions by, for example, converting to a horticultural land-use – where there are no ruminant greenhouse gas emissions – they get the financial benefit of that emissions reduction,” he explains.

“That will incentivise the land-use change that reduces greenhouse gas emissions and leads to higher value land uses.”

He sees horticulture as a higher-value use than farming – if we strip some labour costs by using robotics, sensor-technology, mobile positioning devices and the internet.

Parker predicts a move back to cropping and horticulture in

Canterbury in decades to come “because there will be more money in it”.

There are three ways to encourage the change of land-use practice, he says: education; regulation; and price. Regulation is the most important – “we need decent rules under the RMA imposed by central government” placing limits on nutrient and effluent loss into waterways.

Parker says he’s willing to consider a regulatory change to more easily adopt work being done by overseas regulators to help the EPA – as they don’t have enough funding to do that by themselves.

“I’m not opposed to people going organic, but I’m also aware that some of the environmentally responsible farming systems – such as no-tillage, or trying to move a monoculture to a mixed forage crop – need the use of herbicides to clear the land in a way that you can’t do with an organic system. These systems can produce more sediment discharge to rivers than some of their alternatives.”

New Zealand has a very low rate of R&D expenditure, with the exception of government support in the agricultural space – one of the country’s biggest science spends.

“To lift the value of outputs and improve productivity, we need to invest in innovation, so we have measures planned for that, including the R&D tax credit.” ■



Nathan Penny

Agriculture is in a sweet spot - with high returns across the sector - and the economy is healthy, with some issues, says ASB's Senior Rural Economist, Nathan Penny.

As a trading economy, New Zealand is in a good place. The global economy is improving, even Europe is back on its legs again.

We can deal globally driven by capital gains. We are a low-cost producer, but "the sector to watch is horticulture". That's where the action is.

Themes

The first theme is wild weather. We've gone from a very wet spring to temperatures going through the roof at the end of last year, not much rain and looking down the barrel of a drought: We went from one extreme to the other and back again.

"It really has been strange weather, the strangest season that I've seen in my time in this role."

That comes with challenges for farmers such as animal health, maintaining pasture and pasture coverage.

Another theme is debt consolidation and debt leveraging. It's been at the centre of some interesting conversations between farmers and bankers. There is a desire, on both sides, for debt to be paid. The interest-only loan, quite common for many farmers, continues to fall, Penny says.

"There is a desire to run stronger balance sheets and that means holding less debt. We are likely to see that continuing for the next few years."

For his next theme, Penny compares New Zealand agriculture in the early 2000s to a "kid in the sandpit," there was growth but it was dairy-centric.

"Fast-forward to the current day and the sandpit is a lot more crowded."

There is much more competition for resources - land, water, people, credit or funding. We've had record seasons for beef, lamb and kiwifruit. Forestry prices are also very good, another record high for apple exports, with wine and avocados doing very nicely as well.

A crowded sector is healthy.

"There is a possibility to look for the highest return from land and water - and this may not be dairy, as it once was," adds Penny.

Reallocation of land from dairy to horticulture is already happening in the Bay of Plenty and is set to continue.

One policy that will stick, even with a change of government, is the climate change and a net carbon-zero economy by 2050. Agriculture will be helped, in the first instance, with a subsidy of 95 percent. Once the Climate Commission meets and makes these recommendations - they will start to be enacted.

Lamb - one out of the box

Lamb has had a rough run over the last few years, but this has turned. Penny said things were pretty grim at the start of the season. Brexit had just happened, with the UK a leading export market, and more of the same was expected. But, as it turns out, other players stepped up and filled the gap the UK left behind - like China, the United States, Middle East and parts of Europe. That's led to the best returns for lamb since 2011-12.

"Pretty much second best prices on record," Penny states.

On the other hand, wool prices are very low. "That's not going to get better anytime soon," he says. Medium and fine wools are doing well, especially merino.

Beef strong

Beef has been strong and "January prices were highest on record for January". He predicts another good season with plenty of demand, but somewhat constrained supply.

US demand is firm and another growing key market is China.

The risk is a higher NZ\$, but even with that, we expect beef prices to remain healthy, he says.

Dairy, back in the black

Most farmers are "back in black". Last season, "money was going back into overdrafts, with very little in new spending". Spending and deferred maintenance is back on the radar. Animal health, in particular, is on farmers' lists in terms of catch-up spending after two skinny seasons.

Milk solid production growth also fell over the last two seasons - until then, there'd never been two seasons in a row of falling production. We're close to another one, Penny says.

Dairy constitutes a large bulk of agricultural debt. "We can see the build-up of debt through the 2000s" until getting to about \$20 per kilo of production. When times were good, debt fell. "More recently, when times were tough, it started to rise again."

Global markets are pretty balanced and demand is not too bad, particularly in the milk fat market. There is a global shortage of butter, which will take a while to unwind. The crazy weather has also had an impact on supply and prices." ■



Mike Duke

Infield robotics will solve problems in New Zealand, upscale the population and provide the opportunity to export high value machinery around the world, according to Mike Duke, the Waikato University Dr John Gallagher Chair in Engineering.

We're working on robotics in the primary industries because New Zealand is still reliant on exports – with over 60 percent from agriculture – and we have to continue to improve performance, he says.

Duke challenges the notion that putting robotics in agriculture will take away people's jobs. He says it instead offers an alternative to low-paid labour and helps improve growth in the primary industries. He iterates that robotics solves problems for organisations, including increasing costs, labour shortages and reliability, as well as health and safety.

Quality control, he says, is not a good use of human brain-power and time. Machine vision, computer algorithms and sensors are starting to make a big impact. Computers can grade and sort apples.

"This works as well as a company's best grader," he says.

The big challenge is moving robotics from factories to fields. He says there is a "revolution about to kick off in infield robotics". A lot of factors are lining up simultaneously for this revolution, "we have better computer power, lots of cheap sensors, 3D printing – allowing flexibility for us to quickly change the model, print one off and try again".

Horticultural robotics research is worth \$10 million and involves MBIE, the universities of Waikato and Auckland, Plant and Food and Robotics Plus.

An example of infield robotics includes kiwifruit harvesting. This is technically far more challenging because kiwifruit hang at all sorts of angles, there are vines in the way, varying levels of light and more complex ground.

Driverless vehicles are very applicable to agricultural robotics. These self-drive around farms and orchards.

"We've already got tractors which can self-drive with GPS. We're taking it to another level – fully autonomous, agricultural vehicles."

These have a GPS and lots of sensors, and navigate around orchards. They have to get around the orchard two or three times without anybody doing anything. There is still a bit of work to do to make sure they are safe, including seeing if they can recognise dummies in the orchard.

There's a kiwifruit harvesting robot – a device with a robotic arm that finds and picks kiwifruit. The 'ultimate kiwifruit-eating robot' has cameras that look at the canopy and, using various algorithms, creates a 3D map. Once it knows where the kiwifruit is, it schedules which ones it's going to pick.

To get these up to commercial level, Duke says "we need four of them on one platform, getting one kiwifruit per second – which they're not far off".

The holy grail of robotics is apple harvesting. There's a move to growing apples on vines, which is "great for yield, and great for robots." The aim is to get to a speed of harvesting one apple a second – which is when people will be very interested in that design.

As bees don't like kiwifruit flowers, another project involves kiwifruit pollination. He asks how do we get the 100,000 flowers per hectare in an orchard? The answer is using convolutional neural networks – "basically a way of machine learning".

"We get these really high powered machines from the States. They take images, then the neural network system identifies the flower. It figures out the location fast enough to be able to travel under the canopy and find them in real time, which means we can 'hit them with pollen'.

That is a major breakthrough as there is a very limited window to pollinate flowers.

"It's like Star Trek, it's nuts. And this isn't anything like what's coming in the pipeline – the next thing gets even crazier," he says.

"You can apply this to loads of different stuff."

Duke says the system could also monitor disease.

"If you can train it to recognise a flower, you can train it to learn a stink bug or disease – now you have the possibility of a vigil for disease."

He says one project underway is to replace the thought-processes of an expert with machinery – that opens up a new can of worms and is very close. ■

Summer conference (cont'd)



Michael Brooks

The poultry industry is often seen as a little off to the side in the agricultural sector, but is a big player in protein and meat and a big supplier in New Zealand, said Michael Brooks, Executive Director of the Poultry Association.

Chicken consumption has grown consistently for 25 years - probably three percent or more growth year-on-year, Brooks told attendees.

Four companies - Tegel, Inghams, Turks and Brinks - produce 99 percent of New Zealand's chicken.

All farms have to be within two hours of the processing plant.

New Zealand's chicken exports are growing too. Tegel aims to export 25 per cent of its production. Australia and the United Arab Emirates are big markets and Japan is another potential market.

He says New Zealand's chicken industry is vertically integrated - as it is around the world.

"It is the reason why since WWII chicken has surged as a protein source worldwide," Brooks explains.

Tegel has a hatchery that brings in the breeds from overseas, they own those birds and contract farmers to raise them.

Tegel supplies veterinary services, it has feed-mills, nutritionists and livestock managers, a truck fleet and does the processing and selling. The company knows up to a year ahead approximate numbers needed throughout the process. "It's incredibly controlled," he says.

There is a growing market in young chicks. Both breeds of chicken used for meat have been threatened with avian flu in the UK and the US, so a third world base for exporting millions of day-old chicks to Asia is being built in Huntly, New Plymouth.

New Zealand is unique in that it has none of the three poultry diseases, avian influenza, Newcastle's, and Campora. So the poultry industry has always argued strongly against importing raw chicken, for the industry and the country's native avian fauna.

Eggs

In the past year, there's been a 9.5 percent growth in the consumption of eggs. Like the meat industry "we are going through absolute boom times".

Cage-free doesn't mean free-range, it means it's been raised in a barn.

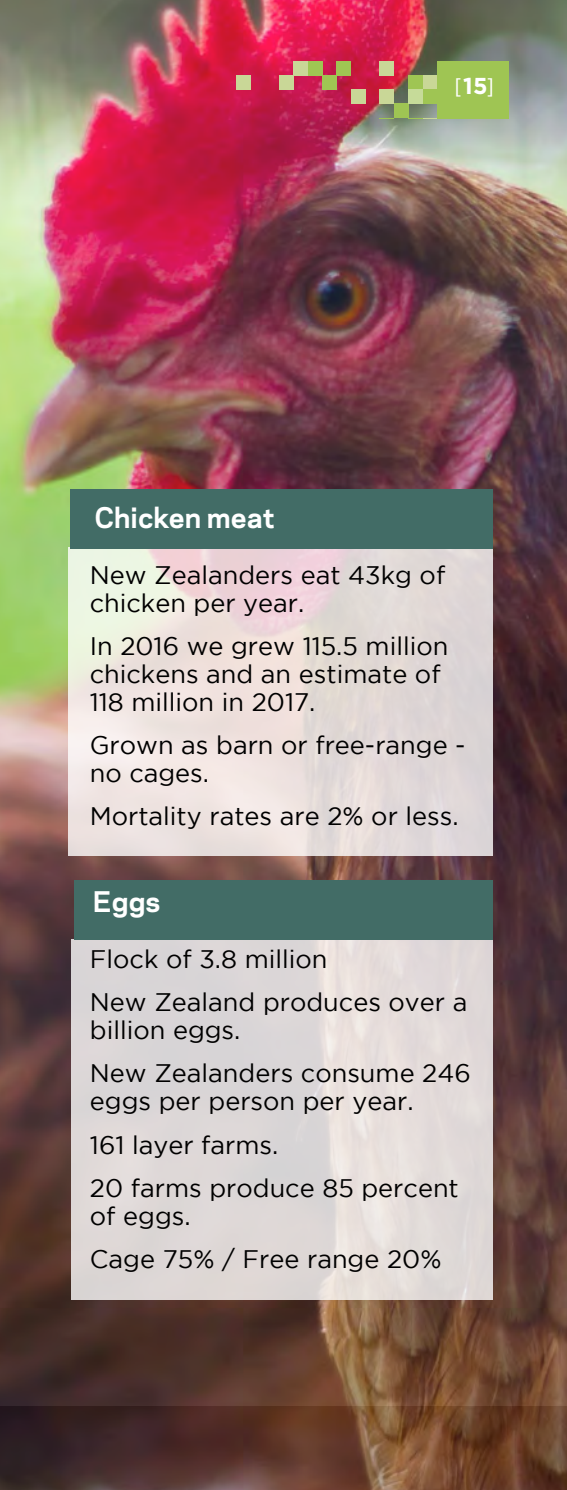
But a law change in 2012, means that by 2022, all cages and battery cages will be gone. It will make us the second country in the world to do this. So barn and free-range will be the only systems in New Zealand after that date.

For a cage farmer you're looking at a minimum of a million dollars - for a large company, \$60 million - to change these systems.

Antibiotics

The NZ Meat chicken industry has always had the position of not using WHO antibiotics that are deemed to be of high or critical human importance. We use one antibiotic - Zinc Bacitracin - on a prophylactic basis, so it's always in the feed and it's for an internal gut disease called necrotic enteritis. We believe that its use as prescribed by veterinarians is "the appropriate way to go". We also use ionophores, which are considered antibiotics here, but not in Europe.

NZVA has the position of no antibiotics for animals by 2030. This is a big issue, as we don't have a vaccine for necrotic enteritis. ■



Chicken meat

New Zealanders eat 43kg of chicken per year.

In 2016 we grew 115.5 million chickens and an estimate of 118 million in 2017.

Grown as barn or free-range - no cages.

Mortality rates are 2% or less.

Eggs

Flock of 3.8 million

New Zealand produces over a billion eggs.

New Zealanders consume 246 eggs per person per year.

161 layer farms.

20 farms produce 85 percent of eggs.

Cage 75% / Free range 20%



Maureen O'Callaghan

The need for alternative products in the marketplace, social licence, and acceptability for export and domestic markets is behind an emerging biopesticide revolution.

AgResearch Principal Science and Associate Professor at Lincoln University Dr Maureen O'Callaghan says production losses and control costs due to pests and weeds are huge. The losses are coming from endemic pest species, becoming more problematic due to land-use changes. Damaging population levels are a result of issues such as monoculture and irrigation insulation.

Zoonotic diseases can impact, not just the primary sector, but also the country's natural ecosystems and biodiversity. O'Callaghan says PSA in kiwifruit was a horrible example. Now there's myrtle rust. As well as ongoing increasing pest pressures, there are increasing incidents of pesticide, antibiotic and fungicide resistance, she says.

Her solution is to better manage chemical, biological and other pest management tools and practices by using combinations of them.

Internationally, there is a biopesticide revolution - the use of microorganisms such as bacteria, viruses, fungi or metabolites - to suppress and decrease numbers of pests that are also safe for bees.

"That's the positive of having a narrow host range. The downside is that they have smaller markets," O'Callaghan states.

Agchem companies are buying small biological companies to extend the life of their products. Growers using biopesticides instead of always using synthetic chemicals can delay the onset of resistance. These are also significantly cheaper and faster to develop and register.

Some regulatory systems around the world are now much more favourable and support the registration of biological products over and above that of new chemistries.

New Zealand has relatively few registered biopesticides. Low R&D investment has limited the amount of research being done in this space.

Microbial species have been identified in this country that are new to science and have unique modes of action. Using these microbes in combination with each other or with metabolites will lift efficacy levels to those of synthetic chemistries.

She says there is a focus on the black beetle, an introduced pest, which is causing increasing problems for dairy farmers. In the arable space, naturally

occurring microorganisms in maize and brassicas - known as endophytes - are being investigated.

"We're doing a lot of detailed work on mode of action too, showing how it works at a cellular level, demonstrating host range and understanding why it's specific to an insect. This is important for registration. We are looking at ways of growing it efficiently, formulating it and putting it into the field. We are working with partners to gather information to commercialise these."

Biopesticides have been criticised as giving inconsistent results in the field. So some things coming out of the programme include a product called Kiwivax which improves resistance to PSA and is supported by Zespri. A foliar application for kiwifruit is also being developed. O'Callaghan says these are being combined to improve effectiveness and "achieve a significant reduction in PSA in kiwifruit".

A new biopesticide product, using a new unique bacteria, is being developed with Plant and Food to manage the black beetle - for which no pesticides are currently registered. This beetle causes a lot of grief for dairy farmers, but also for pasture, maize and potatoes.

"We are also trying to bring groups together to make biopesticides a viable option to New Zealand growers. We can work in the lab, but can we hand that to a manufacturer? Is it going to work with application technologies?"

She says they are working closely with grower groups, such as, Zespri, FAR.

Biopesticides are not a magic bullet; many new biotechnologies are in development. But they will be - and are overseas - one of the many tools needed for sustainable production, she says.

A number of future opportunities from science are underpinning this - like understanding the modes of actions and metabolites that come out of it.

The US, Brazil and China have more products and research to support it. Less research and fewer products are registered in the EU than other jurisdictions. Countries, like Brazil, favour the registration of biopesticides over synthetic chemistries and that is supported by legislation. This touches on some social factors.

Understanding the drivers, values and belief systems that underpin the decision-making of using these products is important for maintaining the social licence to use existing technologies as well as developing strategies.

There has been movement in microbial pesticides in New Zealand. But, she says, we are a country of small companies and there are gains to be made in the coordination of effort. ■

Summer Conference (cont'd)



Eat My Lunch Founder Lisa King said that when she heard that 27 percent of kids were living in poverty in New Zealand, and that some didn't have lunch, she "had to do something about it".

After 15 years marketing some of the country's biggest food brands, Lisa used her experience "to make sure no kid goes hungry" by taking the idea of buying a lunch and giving another. For every lunch sold, Eat My lunch provides a nutritional lunch to a Kiwi kid in need.

The social enterprise business launched in 2015 with the belief that clever business solutions can solve big social issues. The goodwill paid off. In the first six months, Eat My Lunch raised \$6 million in free PR.

In the first day they made 50 lunches, then 200, and by week three they were making 400 a day.

Eat My Lunch feeds 112,000 kids every school term in low-decile schools in Auckland, Hamilton and Wellington.

Agcarm uses the service whenever possible. ■

Join us at the annual conference

Look forward to seeing you there!

Agcarm is holding its 71st annual conference on July 26 at Te Papa in Wellington.

Attendees will have the opportunity to meet government ministers and officials, and listen to quality speakers from New Zealand and overseas.

We will hear from the Minister of Agriculture, Biosecurity and Food Safety, the Hon Damien O'Connor, as well as the Executive Director of The New Zealand Initiative, Oliver Hartwich; Foundation for Arable Research Chief Executive, Alison Stewart; Chair of the NZ Veterinary Association, Peter Blaikie; and General Manager of Hazardous Substances and New Organisms, Dr Fiona Thomson-Carter will update us on the EPA's activities.

After cocktails, members and invited guests will join us for dinner, where Jamie Fitzgerald will share some of his experiences including rowing the Atlantic.

Further details of the day, including accommodation options and costs are available on our [conference page](#) or by contacting the conference organiser, [Lee Sheppard](#).

Please note that non-member attendance is subject to Agcarm approval. ■



Agcarm welcomes new members

SUMITOMO AUSTRALIA

Corporate associate

Sumitomo Chemical was established to develop, register and market products for crop protection, household insect control, environmental health and professional pest control in Australia and New Zealand 20 years ago. It is a wholly-owned subsidiary of Sumitomo Chemical Co, Japan, which was established in 1913 and has operations in 212 countries and more than 27,000 employees.

Sumitomo Chemical invests in R&D in life sciences, IT chemicals, and organic and inorganic chemical synthesis.

Their crop protection range comprises of conventional chemistry as well as biological solutions.

Sumitomo Chemical Australia joined Agcarm to keep updated on agricultural issues; share their R&D expertise; and find the best solutions for New Zealand agriculture.

With ongoing changes in the regulatory systems around the world, the company aims to be a proactive and positive contributor to any discussion on stewardship, regulation and industry developments. ■



RUTH DAVIS

Individual associate

Dr Ruth Davis is Director of Redcap Solutions, a regulatory affairs consultancy based in Sydney. The company specialises in the registration of veterinary medicines and other animal health products in both Australia and New Zealand.

Recap Solutions joined Agcarm to keep up to date with changes in New Zealand's regulatory environment.

Having attended the Agcarm Summer Conference, Ruth says, "I look forward to attending future conferences and networking with other members."

www.redcapsolutions.com.au ■



RUTH DAVIS



DAILE HOLZ

Zoetis Regulatory Affairs Manager Daile Holz was appointed Agcarm manufacturer board member at the Summer Conference in February.

Daile currently has oversight of regulatory affairs and quality at Zoetis after nearly seven years with the company. She also spent time in government including working for the ACVM Group and the Sustainable Farming Fund after leaving veterinary practice. ■



DAILE HOLZ

What is Agcarm?

Agcarm is the industry association which represents crop protection, animal health, and rural supplier businesses. Agcarm members distribute and sell the majority of veterinary medicines and crop protection products in New Zealand. Agcarm members promote responsible use of products right through the product life cycle, from research to disposal. Agcarm is also a positive voice for its members and lobbies for progressive and sensible policy.

For information on joining Agcarm, go to www.agcarm.co.nz

Our mission is to protect and enhance the health of crops and animals through innovation, development and responsible use of products.

We work with governments and stakeholders from around the globe to shape policy and meet the shared goals of health and safety to protect the environment and the food chain.

Our ability to source information from experts around the world gives legislators access to the best advice.

Agcarm's priorities:

Safe Food / Provision of Innovative Compounds / Resistance Management / Healthy Animals and Crops / Product Stewardship / Bee Health / Sustainability.



**The voice of crop protection
and animal health.**

