

CONNECT

Updating shareholders about their co-operative

Strong start as your co-operative kicks into gear



Environment is still key

Ravensdown started its financial year very well with some ambitious targets being met across all the product lines, continued investment in our stores infrastructure and recruitment of more consultants to help shareholders achieve their environmental goals.

In the five years since it started in 2013, the environmental consulting business has delivered more than 33,000 contracted hours of effort helping farmers with their mitigations and compliance needs.

While we help farmers to reduce their environmental impact, we work hard on reducing our own.

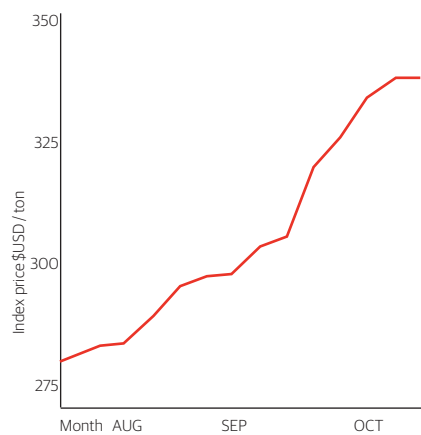
Ravensdown is one of 60 leading New Zealand businesses whose CEOs formed the Climate Leaders Coalition.



This commitment to measure and publicly report their greenhouse gas emissions and work with suppliers to reduce their emissions has already resulted in your co-operative publicly reporting on its carbon emissions for the first time.

Rising fertiliser prices

For the past couple of years, your co-operative has been able to pass on global price reductions on key fertilisers.



UREA INDEX - Fertiliser Granule - Arabic Gulf - FOB

But as we near the end of 2018 the global trend of urea price rises has continued – as the graph shows, the price of urea has increased by a third. US sanctions on Iran (a large exporter to the rest of the world) have been part of this trend as has demand from key growing markets in Brazil and India. At the same time, fuel prices and shipping rates have also marched upward and, along with the currency situation, meant domestic urea prices also increased.

We will do what we practically can to shield farmers from the worst of the volatility while making long-term investments and decisions that account for the underlying cyclical nature of commodity prices.

The choice to use N-Protect (urease coated urea) will help reduce volatilisation losses, keeping more N in your soil for better pasture production and lower your nitrous oxide emissions.

Greg Campbell, Chief Executive

Recovery on track after fire

We're enormously proud of the Christchurch Works team who responded so professionally to a fire at the Hornby site in October.

The fire appears to have started during some maintenance work and spread along the roof line when a rubber conveyor belt ignited. Four out of the 13 stores on the 14 ha site were damaged. Within 48 hours the despatch was open for business and customers were benefitting from their picked up orders. The manufacturing operation was also undamaged and superphosphate was being manufactured eight days later.



It certainly was a "baptism" for our new GM of Operations Stephen Esposito who joined us from Solid Energy. An engineer by

background and someone who cares deeply about safety and the environment, he is a great leader for that team.

Inside

If you have any suggestions of items to include in Connect, then please email Newsletter@ravensdown.co.nz

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More choosing N-Protect and stores improvement continues

N-Protect as a great tool in the emissions toolbox

As part of the suite of tools available to Ngāi Tahu Farming for managing N loss, they use N-Protect, Ravensdown's coated urea product.

Not only do they get a better response from pastures, it adheres to the environmental mandate they operate under by ensuring a lower risk of N-loss through volatilisation.

"For us it is about being strategic in your use of N and about asking if you really need it," says Shane Kelly, General Manager of Dairy.

"We use N strategically to create our feed when it is both low-risk and low-impact, to help set ourselves back up. With N-Protect there is a better return - you end up using less product overall because your utilisation rate is better," adds Shane.



The use of N in Ngāi Tahu Farming's 6,500ha dairy development Te Whenua Hou (the new lands) has been pivotal. "There is a lot of carbon tied up in the soil, which is an issue coming out of forestry," says Shane. "N gets those micro-organisms going and helps create a cycle."

He says they have reduced their N use over time, and have stringent controls in place to ensure ground temperatures are optimum for spreading, reducing the chance of N leaching.

"We want to know we are doing good things for the environment," says Shane.



"For us it is about being strategic in your use of N" says General Manager Shane Kelly of Ngāi Tahu Farming



Gisborne upgrade for improved truck movements

The intake at the Gisborne store was originally designed around rail wagons and small trucks.

The roof was too low to accommodate the five-axle trailers that are now the norm at the busy store which averages around 45-50,000 tonnes annually.

The store extended one extra full bay to a height of around 11 metres allowing trailers plenty of room without having to move forwards and backwards constantly. This ensures a faster throughput of trucks.

Replacing the asbestos cladding lets in

more light which is safer and better for the product quality. High bay floodlights for early morning/evening discharges were also added.

Investment in infrastructure

Ravensdown has a large network of buildings and their quality impacts on product quality.

The co-operative spent \$21.6m in its operations and stores last year. As well as improving the experience of working there or visiting, the co-operative is also investing in removing asbestos from roofs and cladding.

Extending aerial research and water-based services

Aerial scanning gets backing from Ministry to extend service

Ravensdown's Primary Growth Partnership programme has been extended to cover more geographic areas with the aim that the research outputs will be valid for 90% of hill country in New Zealand.

The research involves aerial scanning of hill country farms combined with actual soil tests so a predictive model of soil fertility can be calibrated across the varied terrain. New additional funding has been made available by Ravensdown and the Ministry for Primary Industries on a 60:40 basis so that the North Canterbury and Southland regions can be modelled and tested.

"It's an opportunity to take the camera into those regions that have never seen it before and compare camera results with on-ground results to validate the aerial sensor's effectiveness," says Mike Manning, General Manager Innovation and Strategy.

Of the farms using the aerial spreading precision service so far, the system ensured fertiliser was avoided for 14% of land either because it was ineffective, culturally sensitive or environmentally vulnerable. The technology also makes it safer for pilots and can be better for productivity and the environment.



A soil fertility map directs GPS-enabled topdressing aircraft to deliver fertiliser where needed

AirScan® going beyond hill country In a separate development, Ravensdown announced an additional \$2.5 million so that AirScan® be tested and applied to other farm types - including dairy operations.

"The benefit of speed, accuracy and ease of aerial-based hyperspectral scanning is not just restricted to hill country operations," said Mike Manning, General Manager Innovation and Strategy.

The challenge has always been how to capture accurate soil data quickly and easily in a way that will guide important decisions around nutrient application rate.

In the coming year, six dairy farms located across Canterbury, Taranaki and the Manawatu will be aurally scanned using hyperspectral remote sensing technology. Mike Manning is excited about this new development "This testing and measurement phase takes time and money, but the gains for New Zealand farming will be worth it."

Interested shareholders in the areas listed above are invited to get in touch with the Ravensdown team to discuss being a trial farm for the AirScan® research.



TRUSTED AND LEADING

Environment team extends service

The Environmental Consultancy team is looking to introduce a new service called Integrated Catchment Management where Ravensdown helps farmers and local community members who are working together to protect their waterways.

Mitigating nutrient impacts, one stream or one farm at a time, can be more costly and less effective, according to Mark Fitzpatrick Business Manager Environmental.

"Water quality is often an accumulation of consequences that is affected by the choices of a wider variety of community members. Communities are motivated to look at catchment impacts. Our new service will provide the means to take that bigger picture approach and help promote good farming practice."

Mark Fitzpatrick believes communities are the key to catchment management



Monitoring continues as Western Sahara sourcing comes under spotlight

Sourcing an essential nutrient

There's been some attention recently on the Western Sahara (WS) and the supply of phosphate rock for New Zealand farmers.

New Zealand's pastoral system is a distinctive competitive advantage in the world of food creation but it does depend on phosphate (P) and sulphur (S) being constantly replenished in the soil. For over 100 years, granules of superphosphate have been the way much of these nutrients have been applied - with ever-greater precision - to the soils.

As a co-operative, Ravensdown was originally formed to ensure a reliable supply of these and other essential nutrients. We scour the world for sources and do our due diligence on our supply partners. With P being such an indispensable part of food production, there are only 14 countries that make their phosphate commercially available for export including China, Vietnam and Peru.

When including the 2% from the WS region, Morocco has 75% of the world's known phosphate reserves. Its mining and export company, OCP, is a reliable provider that invests in its infrastructure and in the local communities (see opposite).

What makes WS rock so important?

The WS rock has certain unique characteristics which, when blended with other rocks, enables superphosphate manufacturers to:

- Make a granule containing the right amount of P
- Lower the amounts of dust generated when spreading and reduce the risk of phosphate ending up where it's unintended; for example a neighbour's property or a waterway
- Reduce cadmium build up by keeping below the industry's voluntary limit of 280 mg/kgP
- Efficiently grind and process the rock to the correct specification
- Avoid odour and fluoride in the manufacturing process that impacts neighbours at the three works.

Ravensdown continues to look for phosphate sources other than Western Sahara, but there is no alternative that comes without significant environmental impacts, processing costs and supply risks.

What makes WS rock so controversial?

Since 1991, there has been a UN-administered ceasefire that stopped the fighting between the Algerian-backed Polisario Front and the Moroccan government over who should govern the area known as Western Sahara.

The local people are known as Saharwi and while thousands remain in WS, many live on the Algerian side of the border in a camp next to the town of Tindouf. While the mainstream media have covered the agenda of this group, the interests of the thousands of Saharwi who live in WS and depend on the trade has gone unreported. Closing the phosphate facilities by stopping all trade would jeopardise thousands of livelihoods.

The UN designate WS as a non self-governing territory and has rules for anyone wanting to trade with those parts of the world. OCP continue to demonstrate that they comply with these rules and so the trade is deemed to be legal.

As a complex long-running territorial dispute between governments, the issue is best tackled by the UN. Whatever the eventual political settlement, Ravensdown will work with the relevant authorities to continue to ensure the legality of the trade.

Western Sahara Factfile



1912

Morocco made a French Protectorate

1956

Morocco gain independence from France and Spain (Spain exit in 1975)

1962

Algeria gain independence from France

1975-1991

Algerian-backed Polisario Front fights Morocco for Western Sahara autonomy

1991 - today

UN-administered ceasefire pending a referendum

Regions designated as non self-governing territories administered by other countries

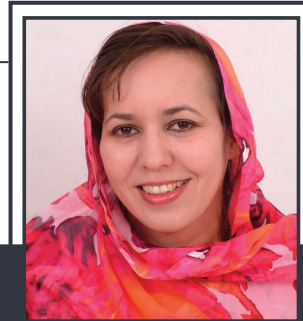
Falkland Islands
Gibraltar
Tokelau
Western Sahara



President - Phosboucraa Foundation

A message to Ravensdown shareholders from Ms Hajbouha Zoubeir

Information on this page is supplied by OCP about its subsidiary PhosBoucraa as part of Ravensdown's ongoing due diligence of suppliers.



43,000

patients treated through health access programmes

11,000

young people benefitted from capability-building programmes

5,000

5,000 people were trained to become entrepreneurs

100%

of all PhosBoucraa profits are reinvested locally – no dividends go to OCP

“The Phosboucraa Foundation is a diverse and committed team serving our Saharwi communities.

This commitment is an honour for us, because we are serving a community whose wellbeing is important to us all and one in which I myself have grown and learned.

We carry our commitment together, and we are driven by the belief that Phosboucraa Foundation is a tremendous development lever for the Sahara.

The Foundation was created by OCP to share its societal commitment in the regions and to ensure that all the investments and initiatives supported by both the Foundation and Phosboucraa are and remain an ongoing source of wealth and prosperity for the Sahara and the community.

Our achievements continue to multiply ever since the Foundation's creation four years ago as we have one constant objective: meeting the needs of Saharawi communities.

Strengthening capacities, developing skills, improving living conditions and income,



“I was able to acquire a range of personal skills thanks to the Foundation scholarship.”

*Mohamed Maarouf,
dental surgeon*



“My daughter and son are studying in school. They both benefited from the Phosboucraa Nursery School.”

*Mohamed El Ayachi,
dairy farmer*



“If I hadn't received the scholarship of the Phosboucraa Foundation, I wouldn't have studied journalism.”

*Tfarah Haimmad,
journalist*

developing the attractiveness of neighbourhoods... this is our roadmap. And the results show!

Ever since the beginning of our activities, our beneficiaries number in the thousands. Children, women, farmers, associations,

co-operatives... every day, their growing number validates our work. But it's not just numbers that matter - words do, too. Our beneficiaries speak for us. This is the best reward we can have!”

New mapping, software and robots all save time

Proof of placement files on HawkEye

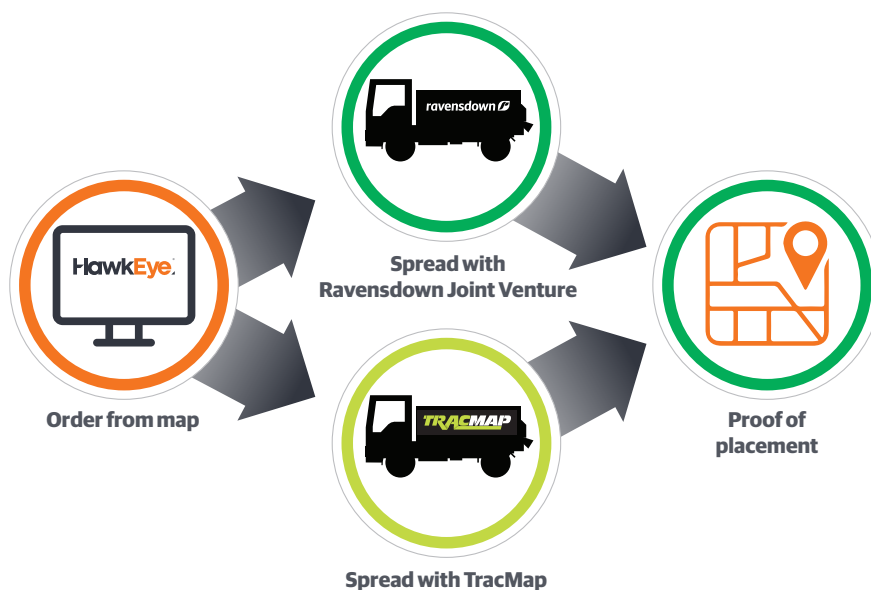
HawkEye is map-based software that helps farmers make smarter decisions for better farm and environmental outcomes.

While HawkEye provides proof-of-placement files for spreading jobs undertaken by the co-operative's joint venture spreading companies, a significant portion of fertiliser is spread by other companies in New Zealand.

TracMap has the largest share of spreading units with contractors and farmers in the country, so Ravensdown has chosen to initially partner with them in order to get their proof-of-placement data into HawkEye.

The benefits of this TracMap partnership:

- More farm activities recorded in HawkEye means richer, more accurate data in resulting nutrient reports.
- Make informed decisions on what nutrients to apply: using the right product, in the right place, at the right time.



- More automated nutrient compliance reporting, so less time is spent in the office.
- In the near future, Ravensdown will be switching on the ability to order fertiliser in HawkEye that will automatically go to the

right Ravensdown joint venture or TracMap-enabled spreader for scheduling. Call HawkEye customer support on 0800 73 73 73 to learn more or to start using HawkEye.

Aerowork computerises maintenance

Ravensdown Aerowork spreads approximately 170,000 tonnes of fertiliser every year with its fleet of 12 active topdressing aircraft.

Every one of those unique aircraft is made up of thousands of parts and components. All of which need to be maintained in a way that is compliant to strict rules and technical specification.

Up until now, maintenance of all these parts has been a spreadsheet and paper exercise. But the co-operative has now invested in a new computerised maintenance management system.

According to Chris Smith Maintenance Manager, "The majority of the parts

have varying life timeframes and cycle parameters such as landings or engine starts before they need to be inspected and/or replaced."

An electronic system gives Aerowork the ability to better forecast aircraft maintenance requirements and will allow the business to streamline the servicing and reduce inventory levels. Less downtime ultimately means more operational time for applying customers' nutrients.

"With the strict compliance standards in aviation, there is no room for error – an automated and electronic system improves our accuracy and this impacts on efficiency and safety," concludes Chris.



Aerowork's new software will speed up maintenance

Water robot speeds up tests

A new robot at the co-operative's laboratory ARL is testing water samples for pH, e-coli, nitrates and phosphates.

The \$110,000 machine speeds up the process and is the first in the country to be

able to test for the range of parameters in a single unit. "In situ sensors in waterways remain an expensive option, so we've gone for a centralised approach that brings efficiencies and enable evaluation of emerging technology," says Will Bodeker ARL Manager.



ARL team put new water robot through its paces

In brief: Items from around the traps



1 New specialist based at Victoria

Ravensdown has appointed Martha Trodahl as Senior Technical Specialist. Martha has been working with Ravensdown to develop the nitrogen and phosphorus tools in the land utilisation capability indicator (LUCI) modelling tool which will better identify losses from critical source areas on farm.



2 Scholarship awarded #1

Catherine Parata is the first winner of the recently established Ngāi Tahu Farming/Ravensdown Scholarship for \$5000. Currently in her third year at Lincoln University, Catherine's Bachelor of Agriculture allows her to explore her interest in animal health and nutrition and plant science.



3 Young Farmer success

Agri Manager Alex Knowles (centre) celebrates earning her spot as Aorangi Regional Finalist after success at the Kirwee District final. Ravensdown continues to support the FMG Young Farmer Contest as the competition changes its strategy to make it more accessible.



4 Scholarship awarded #2

Taiawhio Waipoua-Bryers is the latest recipient of a Ravensdown scholarship awarded to whanau of Parininihi ki Waitotara shareholders.



5 Class of 2018 complete

Ravensdown's development programme for 2018 has completed with recruits who joined in February finding roles within the co-operative. Lucky candidates are already teed up to start as the class of 2019.



6 Volunteer firefighters helped

Dunedin Works Manager Tony Gray welcomes a Ravensbourne Fire Brigade volunteer after a donation helped with the purchase of a 2018 Mitsubishi Triton to be used alongside their main fire appliance.



7 New loader lift

Store Manager Hami Murphy (right) proudly shows the Te Awamatu store's new loader. The upgrades to the mobile fleet continue throughout the network.



8 Staff lend a hand

Turi McFarlane was one of dozens of Ravensdown volunteers who headed out to do some riparian planting. Staff are given one volunteer day a year to help a community cause of their choice.



9 Staff pitch in for charity

CEO Greg Campbell handing a staff donation to Lydia Hemingway of the Child Cancer Foundation.



Agri Women's Development Trust gives rural leaders a lift

Get with the programme

Agri Manager Julie Roberts was one of 14 women picked to go on the AWDT's year-long, prestigious Escalator Programme. Escalator is an established leadership and governance programme for women involved in primary industries and rural communities.

"I applied for the Escalator programme as I wanted to improve my leadership knowledge and skills. I also wanted to explore if leadership and governance roles were a pathway that I should pursue and if my values and ideas aligned with what is required to be effective in this area.

I was born in Toko (Taranaki) the community in which I still live and am passionate about life in rural NZ, the wellbeing of my family and peers and contributing back to the community in which I was raised. I have found myself in some leadership positions throughout my working life and also within the community and I enjoy the challenges that they offer.

Over the past 12 months, I have been given

the time, opportunity and skills to discover my values and build my confidence around how I can implement these into my current and future roles.

The facilitators of the Escalator programme have been of a very high calibre and the content has challenged my thinking as well as providing me with a toolbox for the future.

A great part of the Escalator programme is meeting 13 other women who have a vast range of skills, knowledge and experience. This has provided me with great networking opportunities as they come from a range of rural related industries. The friendships that I have developed will be lifelong.

It's great to know Ravensdown sponsors the AWDT and, as a co-operative, they support employees like me to fulfil their potential. By supporting people like myself within rural NZ, a nationwide network of women is helping to build stronger businesses and better communities which aligns with Ravensdown's purpose of 'smarter farming for a better New Zealand.'

Progress reported

As progress at the co-operative is measured in more than only financial terms, the latest Stakeholder Review reports on various factors where we have an impact and those that can impact on the business.

If you would like a printed copy, please let the Customer Centre know or visit the website to watch various stakeholders discuss the co-operative's contribution: integratedreporting.ravensdown.co.nz



Senior Agri Manager Julie Roberts (seated third from left) graduates in the Escalator class of 2018.

Comments sought

At Ravensdown, we value your feedback and would love it if you could spare a couple of minutes to answer a few quick questions about how we are performing.

As a thank you for participating, you can enter a draw to win a \$250 Ravensdown voucher. Simply go to ravensdown.co.nz/nov18-survey to enter.