agrí business



NAB Agribusiness customers 2017 BACKING RURAL AUSTRALIA

Future-proofing our farmers by investing in sustainability and AgTech solutions.

739 farmers tell us about their ATTITUDES TO NATURAL CAPITAL, RESOURCE SUSTAINABILITY AND AGTECH

Accelerating

When I go out and visit our customers across Australia,

I SEE FIRST-HAND THAT FARMERS ARE INVESTING IN THEIR BUSINESSES AND EXPLORING NEW EFFICIENCIES AND ENERGY SOURCES.

Sustainability is at the forefront of issues affecting our industry and, through AgTech, farmers are seeing benefits not only to their bottom line but also productivity and efficiency, and more enterprises are going off the grid.

It's a smarter agriculture industry that we're seeing but it's not without its challenges, through not only weather cycles but also connectivity.

There's still enormous potential for Australian farmers to increase their use of new technologies on-farm. The cost and a desire to see proven results before committing has constrained uptake.

Another challenge is internet reliability in regional and remote Australia. Farmers are taking the initiative and developing their own innovative, practical AgTech solutions.

As Australia's largest agribusiness bank, we're committed to backing our agribusiness customers, helping solve issues that are most important to them. Speaking to customers, we are gaining important insights into emerging trends and attitudes towards AgTech and natural capital that reflect our commitment to investing in rural communities across the country. We are continuing to listen to what our customers need to grow their agribusinesses. We know it's early days, and the sector needs to be convinced that some of the available technology can deliver on its promises, especially in Australia's extreme climate. There are some connectivity challenges, too, that need to be resolved to ensure farmers can benefit from the data revolution, regardless of where they are.

Everyone has a role to play in enabling AgTech and it's the bank's job to facilitate investment to help our customers make the most of the opportunities available.

We know that energy costs are one of the biggest challenges in the last 12 months, along with soil health and water management. We are actively creating solutions that help our customers manage these risks, increasing their sustainability and profitability.

Khan Horne General Manager, NAB Agribusiness National Australia Bank



Sustainability and NATURAL CAPITAL

Building and sustaining NATURAL CAPITAL

We understand that addressing environmental challenges like climate change, resource scarcity and natural capital loss and degradation is crucial for agribusinesses' continued success.

NAB's Customer Strategy (Business) team conducted this survey of **739 of our customers** in April and May 2017. They ranged across all states, agribusiness sectors and sizes. State Back

100.200

Natural capital' refers to the NATURAL ASSETS ON WHICH OUR ECONOMY DEPENDS

It includes the natural resources themselves, the physical, biological and chemical systems that support them, and the services they provide – things like clean water, energy, food and fibre, healthy air, climate regulation.

The frame of natural capital is intended to elevate consideration of the economic value of healthy ecosystems into decision-making processes in the same way that financial or human capital are currently taken into account.

There has long been a focus on considering the impact of business activities on the environment and of the public-good benefits provided by ecosystems. However, the natural capital approach asks the question: **how important are healthy ecosystems to business?** The intention is to better understand the effects and dependencies of natural capital on individuals and businesses.

Ecosystem services operate at differing scales and provide both private economic benefits (to individuals and businesses who rely on ecosystem services as inputs into their production processes) and public benefits (those that are available without restriction to the community as a whole).

As a bank, we have more influence over the private benefits, which is what we are seeking to understand first. Focusing on the private benefits initially at scale.

From a banking perspective, if good management of natural capital – increased soil carbon, steady pH levels, pasture diversity, nutrient recycling and habitat for pollinators and pest predators – can lower the risk of commercial agribusiness enterprise, shouldn't we be valuing it?

Alternatively, do we have to wait until we've depleted our natural systems before we realise just how valuable they are? At NAB, we're not waiting.



In 2017, NAB customers thought these were the most important RESOURCE SUSTAINABILITY ISSUES FOR AGRIBUSINESS



The most important RESOURCE SUSTAINABILITY ISSUE FOR AGRIBUSINESS

Mean scores

Sustainability issues important two years ago remain important today.



Sustainability issues ACROSS A THREE-YEAR RESULTS ANALYSIS

Over 2015 and 2016, NAB surveyed nearly 5,000 customers on what issues were most important to them. Since 2015, energy costs have increased as a concern while managing water scarcity is a consistent challenge.

Including natural CAPITAL IN NAB'S CALCULATIONS

Garry Gale, Head of Agribusiness Development at NAB, defines natural capital as putting a value on the natural assets – including soil, water, ecosystems and energy – that a farmer works with.

"NAB believes it's vital our farmers utilise this natural capital wisely. To ensure a long-term viable industry, they need to look after their soil and use their water and energy in smart ways. We want to help them do that." Normally, an agricultural business is valued according to its useable land. If a farmer installs a wind break or native vegetation area, it's classed as non-productive land and devalues the business.

"The truth is, if you've got a wind break that is preserving your top soil and increasing its water retention, then that non-arable land is a big value-add," Garry says. Another example of natural capital at work is the insectarium at Taltarni wines in Victoria. It ensures there are enough native insects to eat the light brown apple moth, a major pest of grape vines.

"Taltarni customers love this cleaner and greener method of pest control. It gives them another reason to embrace the brand," Garry says.

"At NAB, we're looking to include natural capital metrics and efficiencies in our business valuation models."

Garry Gale NAB Head of Agribusiness Development

Offering discounted interest rates TO IMPROVE FARMERS' ENERGY EFFICIENCY

Eighty-six per cent of agribusiness customers rate energy costs as a key business risk. NAB and the Clean Energy Finance Corporation (CEFC) launched the Energy Efficient Bonus program in 2015, providing \$120 million for energy-efficient and renewable energy equipment investments for business bank customers. Of the initial \$120 million, 87 per cent of the loans were taken up by NAB agribusiness and rural customers. The offer gave customers a 0.7 per cent discount on the standard equipment loan rate.

Due to the success of the initiative, another \$180 million was allocated in May 2017, creating a \$300 million fund of investments in clean energy equipment across Australia. Through the CEFC initiative, NAB aims to help future-proof the Australian agricultural sector by supporting customers to mitigate risks and harness opportunities that arise from better management of natural capital.

As of October 2017, more than **\$160 million** has been loaned.

Already, agribusinesses of all sizes have taken out loans to buy eligible clean energy assets that cut energy use or generate renewable energy. Eligible equipment includes vehicles, efficient irrigation systems, solar panels, building and lighting upgrades, processing line improvements and refrigeration. "As second-generation farmers currently processing 66,000 bins of fruit per year, we require a massive amount of power. We investigated solar panels and NAB backed us with the Energy Efficient loan. It's reduced our energy costs and made us more sustainable."

Chris Georgopoulos Fruit farmer, Shepparton, Victoria

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Accelerating AGTECH

Challenges and successes in applying new technologies to improve farm profitability.

Ag Tech solutions USED BY NAB AGRIBUSINESS CUSTOMERS IN GENERAL 2017 SURVEY





▲ 45% of crop producers
▲ 56% of horticulture producers

AUTOMATION



53% of crop producers
 67% of horticulture producers







▲ 42% of crop producers



-



▲ 43% of crop producers











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YIELD MAPPING

PREDICTIVE DECISION SUPPORT SOFTWARE

▲ 60% of crop producers





Putting AgTech solutions to profitable use NAB CUSTOMER CASE STUDIES

As we discussed in NAB's recent AgTech White Paper: *The emerging opportunity for financial services*, the opportunity for AgTech adoption is huge. But on the ground, our farmers are facing some challenges that hinder adoption, resulting in many NAB agribusiness customers only applying two or three of the eight main emerging technologies we surveyed. Even so, there are a lot of success stories out there. We spoke with some of our leading agribusiness customers to hear how they are successfully applying technology. Their stories, based on common farming challenges, are on the following pages.



Connectivity first

A major hindrance to AgTech adoption is unreliable connectivity. Some rural communities have decided not to wait for the government to roll out the NBN. Instead, they are taking the initiative and erecting their own internet towers. The Wi-Sky case study on page 14 is a great example of local leaders, supported by NAB, increasing rural connectivity.

Read more



Farming by numbers

One of the most-used technologies in agriculture is farm management and accounting automation system Figured.

On page 16 we examine NAB's rollout of Figured to 100 businesses and how it enabled them to switch from yieldto profitability-based decision making.

Read more

AGOODCO Farm

Spotting opportunities

Crop businesses, with their use of soil sensors, spraying technology and satellite imaging, are our biggest adopters of AgTech and are using the widest range of solutions.

We look at how spot spraying is reducing herbicide use and costs on Agoodco Farm in NSW on page 18.

Read more

CASE STUDY

WI-SKY BUILDING INFRASTRUCTURE TO LIFT FARMERS OUT OF THE DIGITAL BLACK SPOT

Frustrated by the poor quality and expensive (or often missing) internet services available to rural communities, Coolac farmer Jock Graham decided to create the solution himself. The result is Wi-Sky, a dedicated rural connectivity network that delivers fast, competitively priced internet services to off-grid communities in NSW and QLD.



"So many regional people still can't send emails or run farm management and accounting software. Their kids can't even research homework online," Jock Graham says.

Backed by a 2015 Nuffield Scholarship, Jock investigated what farmers were doing overseas and adapted it to serve his home terrain and community.

As Wi-Sky's success grew, other communities got in touch and asked for services that suited their own terrain and needs. Wi-Sky now offers a variety of satellite, individual and community Wi-Fi network options that support the large uploads of data required by AgTech as well as the download speeds needed for everyday life.

Randall Holmes, NAB Agribusiness Banker at Wagga Wagga, helped Jock set up the transaction side of the business. "I wanted to help Jock because of what Wi-Sky gives my clients living in internet black holes. They can't put a price on it. Before Wi-Sky, they couldn't use a mobile phone, let alone cloudbased farming solutions.

"There's no point investing tens of thousands on pivot sprinklers if you can't switch them on or off from your mobile phone. "The same goes for installing a cattle monitoring system when the connection's too slow to alert you when cattle go missing."

Encouraging more AgTech use

Jock acknowledges that everyone gets into AgTech at their own pace. "Partly it's generational, but getting a reliable internet connection is the first step. They usually start by adopting cloud-based farm management systems. Then they branch out into things like livestock or water monitoring solutions."

He adds that educating farmers about how AgTech can improve their bottom line is key. "Also, when more off-the-shelf solutions become available, there'll be a big increase in uptake. At the moment, a lot of solutions are customised, difficult to implement and expensive. That's why things like yield mapping are mostly conducted by agronomists, not farmers."

Randall agrees, adding that even on a less sophisticated level there are huge efficiencies from better connectivity. "Before Wi-Sky, many farmers made a two- or three-hour trip into town to participate in online auctions, and it took tradespeople hours to source parts. "Now they access plans, order parts and participate in auctions online, on the farm."

Randall points out it's the larger scale farms that already use technology like remote stock monitors and automated spot sprayers. "These things aren't cheap to establish but over time they pay for themselves in spades."



"When more off-the-shelf solutions become available, there'll be a big increase in uptake. At the moment, a lot of solutions are customised, difficult to implement and expensive."

Jock Graham Wi-Sky

CASE STUDY

NAB KICK-STARTS 100 FARMERS ONTO FIGURED

Cloud-based start-up 'Figured' combines the accounting software Xero with AgTech applications AgriWebb and Agworld to create an advisory tool that helps a farm make better informed financial decisions. This integration of financials and agricultural productivity information prompted NAB to sponsor 100 agribusiness customers to adopt the program. NAB Head of Agribusiness Development Garry Gale says that Figured's ability to add real-time data on issues such as budgeting and financial results helps NAB and farmers make quicker and more timely decisions. If you add farming methods, yield and soil condition to the financial data, this lets NAB and the farm's managers know if a business is using its natural capital wisely.

"Figured lets us know, for example, if there are overuse issues that could be a liability down the track," Garry says.

He explains that as a bank, NAB traditionally based a farm's pricing of loans on profitability performance, management performance and security offered (this included land, water rights or things like stock numbers).

"We would give a farm with 10,000 cattle a lower price for loans based on profitability from sales than one the same size but with just 5,000 as they have not been as profitable. But if the land, waterways and grass cover reflected that the farm should only be carrying 5,000 head, such high stock rates at that farm may be damaging all its waterways and depleting its top soil through overgrazing. That's a major financial liability in the longer term – and for Australia as a whole." James Black, General Manager of Figured Australia, explains that a farm's accountant, agri consultant and banker – as well as the farmer – can access real-time data that reflects the farm's true financial position. "At the moment, decisions are often made on figures 12 to 18 months out of date. This leads to a reliance on yield (rather than profitability analysis), slow response rates and reduced accuracy."

He explains that Figured changes all this. "Current satellite mapping, GPS tracking and harvest data is reconciled with the real-time ledger or bank account, so a farm's true financial position is immediately apparent," he says. "With Figured, the farm's accountant and bank manager can look at the current books and decide on the most profitable course of action or what size loan a business can really support."

Figured rolls out through advisory channels and gets the accounting firms up and running as a priority.

"We train them so they can act as a first line of support and educate their clients – or run Figured as an advisory tool for them," James says.

A farmer's NAB Agribusiness Banker can be nominated for 'read-only' access to the data on Figured. That's all they need to understand scenarios that test different investment and debt strategies. "It's already facilitating much better discussions and strengthening relationships between the farmer, their accountant and banker," Garry says.

"That leads to better cash flow management and aligns with longer term strategic planning around investment strategies, debt levels and business options."





CASE STUDY

REAPING THE BENEFITS OF SPOT SPRAYING TECHNOLOGY

While spot spray technology has been around for 15 to 20 years, it was only in 2014 that Lockhart crop farmer David Gooden and his NAB Regional Agribusiness Manager Nicolle Killen were convinced that the return on investment justified buying a WEEDit spot sprayer. And they haven't been disappointed. In the fallow summer months, the machine identifies chlorophyll (signifying a weed is present) and sprays only that spot.



Going from blanket spraying 100 per cent to spot spraying only 18 per cent of the crop, the technology has dramatically reduced David's chemical use.

He says the effective use of spot spraying comes down to the number of weeds in a paddock. On the Agoodco property, weed cover has to be less than 50 per cent for spot spraying to be effective. "You have to develop knowledge around your own farming system and environmental conditions."

Help with combating herbicide-resistant weeds

Spot spraying makes it economical to use the more effective and expensive herbicides. It also helps manage dosage accuracy.

Improving yield five to 10 per cent

David notes notes that the paddocks are conserving more moisture and he thinks the technology could be creating a five to 10 per cent yield advantage.

Contracting out technical expertise

Demand for spot spraying technology increases when the price of chemicals is high. David's philosophy was to invest in the technology and gain the operating experience ready for when there was an increase in demand.

"The WEEDit technology is expensive so there aren't many machines around," he says. "You can only use it during the five-month summer fallow season and you also need someone to operate and drive it. But the rewards are there if you've got the skills and the knowledge."

He acknowledges there's a lot of interest in AgTech from farmers but also a lot of nervousness around the unknowns.

David's advice to AgTech producers is pragmatic: "Farmers have to be certain of a return on investment. For any new technology to take hold, it has to be fairly simple to apply and there have to be rewards along the way. If it's too complicated or doesn't meet expectations, it just sits in a corner and is a cost." Fortunately, that's not the case with WEEDit. The Dutch manufacturers are currently taking spot spraying to the next level with research into plant species recognition and crop evaluation.

> "AgTech like spot spraying isn't just about yield. It's about improving the whole farm system."

David Gooden Co-director, Agoodco Farm, Lockhart NSW



Committing to ENVIRONMENTAL SUSTAINABILITY

NAB customer survey 2017



"It's true that there are around 20,000 fewer farms than 15 years ago, and that the remaining bigger farms operate with greater economies of scale. However, technology is also allowing farmers to do more with what they've got. We can grow more suitable crops and stock for our conditions and improve farm profitability without growing in land or stock size. It's one reason why many farmers are planning to grow their business slowly or not at all."

Garry Gale NAB Head of Agribusiness Development

Supporting Australian businesses that support Australia

NAB's approach to managing natural capital, the Natural Value strategy, is about ensuring the smart use of our country's natural assets.

Garry Gale, NAB Head of Agribusiness Development, reminds us that the continent's climatic extremes mean Australian agriculture needs to utilise its natural capital very wisely if it wants to prosper well into the future.

"When you've got a lending book in excess of \$26 billion in agriculture, you have a duty to think long-term and make sure the basics are sound," he says. "It's time to replenish top soil, so NAB must include it in our assessments of a farm's productivity. The same is true of our scarce water resources and energy."

NAB'S ENVIRONMENTAL IMPACT

In the management of our own business and how we assess the businesses we invest in, NAB measures environmental impact including:

Climate change

and how our actions as a business can affect it positively or negatively.

Resource scarcity

and its potential to constrain economic growth and effect on operational costs.

Natural capital

of biodiversity and ecosystem services. These need to be appropriately valued so that businesses include the value of the ecosystem services they benefit from in their plans and calculations.

Having the BIG CONVERSATIONS

We believe that business has a role to play in advocating on environmental issues. From providing advisory services, information sessions and workshops to taking part in consultations on policy developments and spearheading industry initiatives, NAB is committed to engaging in meaningful conversations about environmental issues with our employees, customers, governments, industry bodies, businesses and the broader community.

Find out more about our environmental approach on our website.



Leading the way with OUR INVESTMENT STRATEGIES

At NAB, we recognise that environmental factors are major challenges for our economy and society. Our role is to empower our people and our customers to manage their risks and find new opportunities that harness long-term growth and sustainability.

We are committed to listening to our customers and working with world-class research leaders to create solutions that bring together financial and natural capital metrics, increasing environmental sustainability and long-term profitability of the agricultural sector.

NAB is the only bank contributing to the Food Agility Cooperative Research Centre (CRC), which uses big data to solve agricultural problems. The government is contributing **\$50 million** over the next 10 years and Australian businesses are contributing **\$200 million** to fund the research.

It's also why NAB is experimenting with various technologies and working with the CSIRO to help farmers better understand and utilise the natural capital of their land. NAB Head of Social Innovation Sasha Courville explains that it will allow NAB and farmers to work together to solve natural capital challenges, through defined metrics that will increase long-term profitability and on-farm sustainability.

"We can also alert farmers who look like they may be overstocking about the potential problems we've spotted."

NAB recognises the importance of energy by funding projects that help secure Australia's energy needs, including transitioning to a low-carbon economy. We remain very active in the clean energy sector and since October we have committed more than \$1 billion to renewable energy generators globally.

We continue to develop best-in-class products that support environmental concerns.

Using natural capital frameworks to demonstrate good risk management will help Australian agribusinesses unlock new investment opportunities in the emerging green bond market. At **EUR 500 million**, this latest green bond is the biggest ever from an Australian issuer.

To respond to the growing environmental and social risks associated with climate change, a working group from across NAB has been established to review the risks and opportunities facing NAB and our customers. These recommendations are continuing to shape NAB's leadership position and commitment to delivering innovative financing solutions that back our customers to solve social and environmental issues.

For more information on any of the NAB agribusiness initiatives mentioned here, visit our **website** or talk to your NAB Banker.

Opportunities MOVING FORWARD

NAB has been supporting Australian farmers and agricultural businesses for more than 150 years, helping grow successful primary production and post-farm gate enterprises.

At NAB, we believe it's our responsibility to share findings around best practices with farmers. When we help them implement solutions, we're making the whole agricultural system better for farmers and Australia as a whole.

As the largest agribusiness bank in Australia, we are excited by the potential and opportunities AgTech presents for financial services.

With technology evolving at an increasing pace, there is a real ability and opportunity for the agricultural sector to continue this evolution. The major value shift that AgTech could create within financial services is the opportunity to seamlessly connect data and people within the agricultural ecosystem.

We will continue to back customers like Jock Graham from Wi-Sky and James Black from Figured, who are enabling farmers to adopt technology and grow the agricultural sector across Australia via the latest data and AgTech solutions. There's a huge range of AgTech solutions available to help Australian agribusinesses increase productivity and profitability. We will support this by providing world-class, innovative financial services and expertise to the sector. AgTech can help Australian producers increase yield and maintain high quality to meet growing demand in key export markets, as well as mitigate risks such as growing climate unpredictability, which is central to our Natural Value strategy. With the AgTech transformation well under way, there's enormous potential for Australian agriculture to use new technologies to increase yields, minimise waste and improve the bottom line.

Further information FOR AGRIBUSINESS CUSTOMERS

If you'd like to know more, or would like to speak to an Agribusiness Manager:

Call 13 10 12

Monday to Friday 8am-8pm (AEST/AEDT) Saturday to Sunday 9am-6pm (AEST/AEDT)

Visit nab.com.au/agribusiness

Important Information

NAB would like to acknowledge and recognise the valuable contributions to this paper made by Jock Graham (Wi-Sky), James Black (Figured) and David Gooden (Agoodco Farm). The information in this document is current at the date of publication but may be subject to change. Every effort has been made to ensure the information in the document is current, accurate and reliable. NAB does not warrant or represent that the information in this document is free from errors or omissions or is suitable for your intended use. NAB recommends that you seek independent advice before acting on any information in this document. Subject to any terms implied by law and which cannot be excluded, NAB accepts no responsibility for any loss, damage, cost or expense (whether direct or indirect) incurred by you as a result of any error, omission or misrepresentation in any information in this document. You may download a single copy of this document for personal use, keep a temporary copy in your computer's cache and, where necessary for reference, make a single hard copy. Unauthorised use of document content may violate copyright laws.

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