

AGRICULTURE, ENERGY AND RENEWABLE GAS

It's no coincidence that food prices are inflating in the midst of a global energy crisis.



Data Driven Sustainability

Fads and crazes have plagued progress towards sustainability for years. Competing agendas, out of context statistics, and unproven research presented as fact can make it all too easy for consumers and businesses to be swept up by trends that are often more about marketing than being more sustainable. It is imperative that we address the problems we face with realistic solutions based on empirical and unbiased data.

Let us use food as an example. The carbon or water emissions in food production are a minefield of misinformation, a process described as:

“A gradual conditioning of the public’s thought processes by a constellation of individuals and organisations.”

Replacing perception with fact is the very foundation of informed decision making, and challenging preconceptions is crucial. Best practice is for a business to build a sustainability strategy on the basis of good data. Meat and dairy production has long been under the microscope. These products are generally considered to be high greenhouse gas (GHG) emitters on a kg per kg basis, but what is the comparative nutritional value of each kg produced? Are the farming practices regenerative? What is the state of deforestation in competing protein sources? What are the livestock eating? The list goes on.

Our World in Data, a repository for research and statistics, lists eggs and rice as roughly equal contributors to GHG emissions on a per kg basis, but this excludes the higher



nutritional value of an egg to a spoonful of rice. Similarly, soybeans and milk are listed as similar GHG contributors per kg, excluding the vast swathes of rainforest cleared annually for soybean production. A range of factors play a significant role in determining the sustainability or environmental burden of different foods, and cherry-picking favourable statistics without telling the whole story is exactly what not to do if we are to make realistic steps toward sustainable outcomes.

People need to eat, so while consumers are challenged by the incompleteness of food production emissions calculations, businesses now ponder how and where to strategise to reduce emissions in a timely and cost-effective manner. Answering this question can be very difficult, particularly for those without in-house sustainability resources. It is more important now than ever for businesses to understand the complexities of their value chain, such that they may make informed, data-driven sustainability decisions. This analytical exercise to identify emissions sources and other sustainability hot

spots is a valuable insight and the first step to designing the most impactful and useful sustainability strategy.

Cress Consulting specialises in using data to look beyond the obvious and find the right solutions for your business. Please get in touch [here](#) if you would like to learn more.



Australia's Agricultural Emissions at a Glance

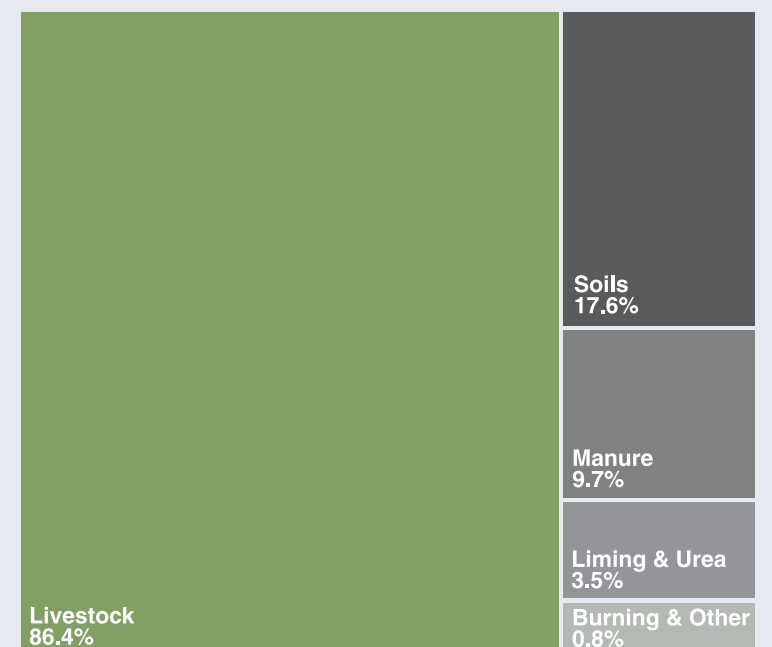
Agriculture contributes about 14% of Australia's total annual greenhouse gas (GHG) emissions. Close to half of these emissions come in the form of methane, predominantly from cattle and other livestock. Methane is a particularly potent GHG, measured between 28-100x more effective at heating the planet than CO2.

Nitrous oxide, another extremely potent GHG, is emitted from the use of fertilised soils. Manure management practices emit both methane and nitrous oxide, accounting for up to 10% of the agricultural account.

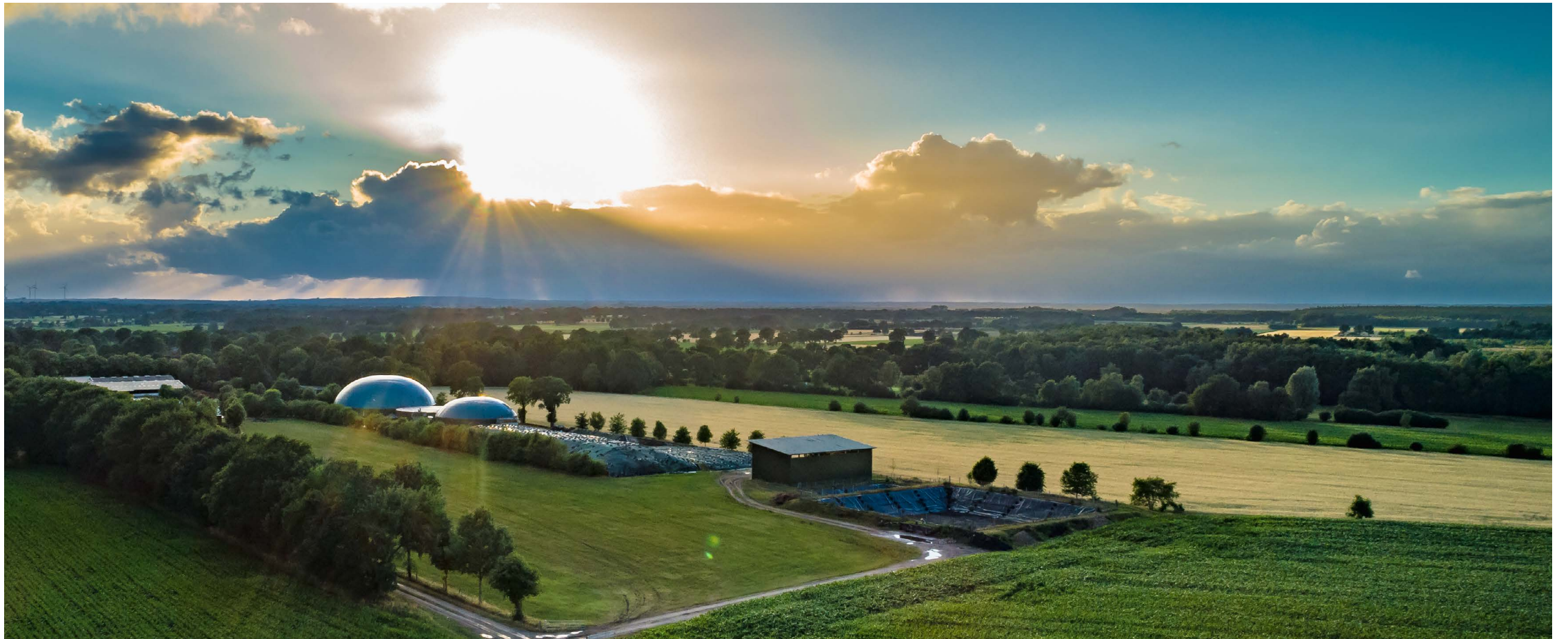
The high global warming potential of these GHGs makes some areas of the agricultural sector difficult to decarbonise. However, techniques such as innovation in crop genetics and seaweed in animal feed are just some of the ways that research and development are pushing agriculture to adapt.

With more than 90% of the food Australians eat produced on home soil, and a significant source of export income, the impacts of climate change on agriculture represent a very serious threat to the Australian economy. A combination of technological and behavioural change is required help adapt and mitigate the worst of the effects of climate change.

Where do agricultural emissions come from?



Data: Department of Primary Industries



Agriculture, Energy and Renewable Gas

Cover Story

It's no coincidence that food prices are inflating in the midst of a global energy crisis. The energy intensity of food production makes it a key cost for farmers and processors, and when these costs go up, they're passed onto consumers.

The energy used is not just electricity, but diesel and natural gas as well. Gas is used in a wide range of applications, such as meat processing, fertiliser production, and as a diesel substitute. As the energy sector moves toward net-zero by 2050, existing gas infrastructure and emerging technologies to produce low-carbon gas offer an exciting and very realistic pathway to clean gas contribution to Australia's energy mix.

A perfect storm of global supply chain disruptions, cold weather, and the war in Ukraine have created an energy crisis. This is in the context of plans to retire several coal fire generators sooner rather than later, raising questions around the future of Australia's energy security. But a strain on the energy sector is not an argument in favour of the status quo – it's a reason to double down on energy transition efforts. Producing renewable energy is an excellent mechanism by which individuals, businesses, or entire sectors are insulated from surging energy costs.

When energy prices go up, it's a one-two punch for consumers. First they are hit directly with higher electricity and gas bills at home. Following this, consumers then bear the effects of 'cost-push' inflation, where food producers must push rising input costs onto consumers. This magnifies the impact of an energy crisis and squeezes Australia's general cost of living. Gas prices have risen from less than \$4 per gigajoule to over \$10 in just 10 years (AER), straining both producers and consumers at both ends of the lifecycle.

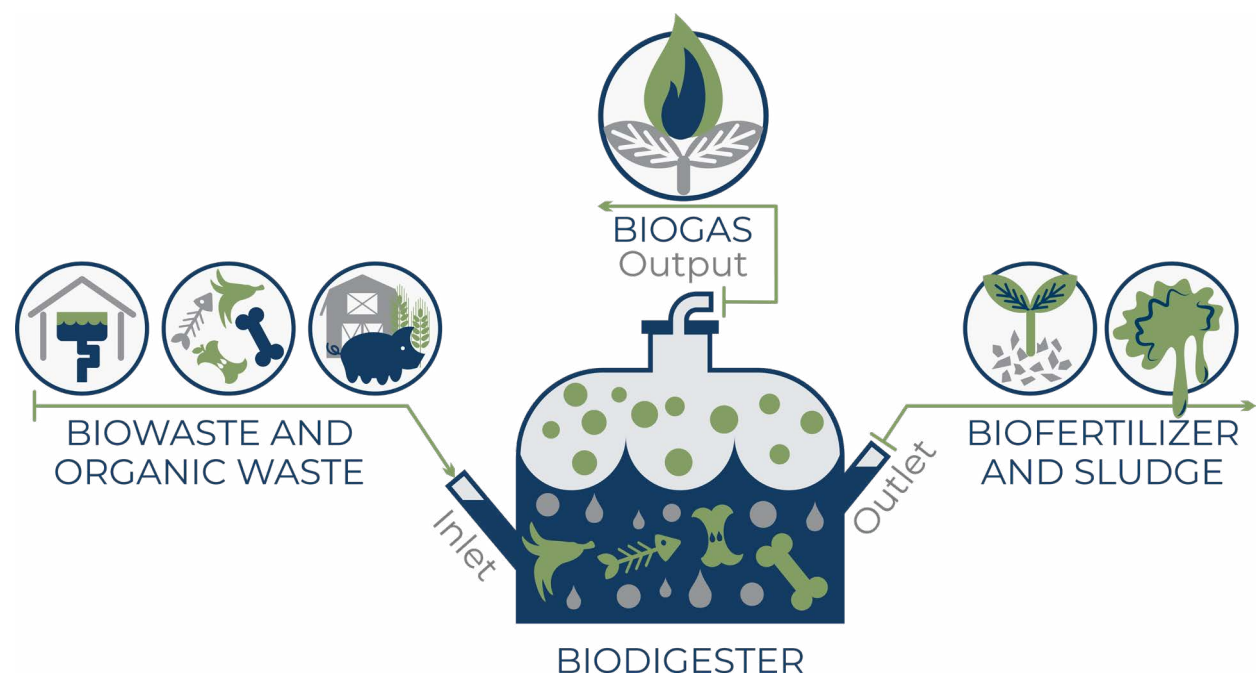
Fortunately, there are low-carbon gas production technologies already operating in Europe that are now being implemented in Australia. Methane, the natural gas typically extracted by big fossil fuel producers, can be produced in other ways. Organic matter such as food scraps, agricultural waste, sewage, and other forms of organic waste can be broken down to produce 'biomethane', which can then be used interchangeably in the existing gas network as a replacement for conventional natural gas.

Bioenergy Australia estimates that this biomethane could produce up to 20% of Australia's gas demand by 2030 if federal incentives and targets are adopted. Energy infrastructure company Jemena is slated to start contributing biomethane into the NSW gas network by 2023 from the Malabar wastewater treatment plant.

Organic waste sent to landfill still creates methane, currently estimated to contribute 3% of Australia's annual greenhouse gas emissions. Food scraps diverted from landfill often go to make lower value products such as fertiliser,

but the proliferation of biomethane-producing infrastructure offers a much more valuable – and cleaner – diversion channel. This would mitigate not only the 3% of landfill methane emissions, but the proportionate savings in natural gas CO2 emissions. In fact, the process of biodigestion still offers fertiliser as a byproduct of the process, but is supplementary to biogas as a the primary output.

So how does this all fit together? The agricultural industry is crucial for the food we eat and the clothes we wear, but by its very nature it is an energy intensive process and always will be. The source of that energy can and must change rapidly if Australians' cost of living is to remain affordable. The union of technology, operating skill, and capital dedicated from institutional investors now exists, offering decarbonisation pathways towards net-zero. The introduction of biomethane-producing anaerobic digestion for organic waste offers one piece of the puzzle towards achieving energy circularity. In a time of energy uncertainty, the dream of low cost and reliable renewable energy generation is much closer than it may seem.



The biodigestion process generates biomethane (biogas) from organic matter.

Nagnata is Using Data to Empower Sustainable Fashion

Luxury fashion brand Nagnata is driving harder than ever to walk the walk of its founding philosophies of sustainable design, ethical sourcing, diversity, and inclusion. Based in Byron Bay, Nagnata is the collaborative creation of sister design-duo Laura May and Hannah Gibbs. As part of their challenge to the fashion industry status quo, the brand wants to offer customers as much transparency as possible across their garment lifecycles.

Sustainable decision making must go beyond intuition and common understanding of what is and is not sustainable. With this in mind, Nagnata and Cress have worked together to critically assess the carbon footprint and water risk profile of their principal fabric supply chains for Merino wool and organic cotton. A cradle to grave carbon inventory was completed for each fibre type to collect data on their respective impacts using industry leading standards and frameworks.

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Supplier and manufacturer locations and practices were also assessed with regards to water risk to understand potential catchment and ecosystem impacts, and to scope mitigation strategies. Nagnata does not buy ready-made fabrics. They dye, knit, and test them all from scratch. This control over every step of its supply chain creates both a responsibility, but also an opportunity for control and traceability.

The research and findings offer the business a strong data-driven foundation on which to make informed, sustainably minded strategic decisions across the short, medium, and long terms. It arms Nagnata with the capacity to fundamentally critique their supply chain and ask questions around where and how their garments are produced.

As much as they have achieved so far, Nagnata still has lofty sustainability ambitions in this space. Laura May and Hannah want to clearly demonstrate to their customers that the fashion blueprint and identity of the business are directly aligned with a future of growth and success in the fashion industry. Their ongoing study is a statement that they are changing the way that things are done in the Australian fashion industry, with the transparency to match.



Merino sheep wool - This durable and low maintenance fibre forms the backbone of Nagnata's product range.

Cress at AIRA

Earlier this year Cress Consulting attended the Australian Investor Relations Association (AIRA) annual conference. The event focussed on enhancing sustainable growth in investor relations, with a full day of panel discussions unpacking market challenges and trends.

The rise of ESG reporting featured prominently throughout the conference, with nearly every panellist offering their experience on its growth. The conference was a fantastic opportunity to hear a wide range of opinions on the inflation of investor expectations, and could not have been more timely for both Cress and our Alliance partners Collier Creative and Morell & Co. As we continue to deliver expert ESG reporting services, it is crucial that we keep abreast of the rapidly changing reporting environment.

The speed of Australian legislative change concerning ESG reporting was a key theme throughout AIRA's conference. As domestic laws and regulations catch up with those in the EU over the next 5 years, the accuracy and efficacy of continuous disclosure has never been more important. Businesses must avoid being regulated into ESG, lest they find themselves playing catch up with competitors and having lost investor interest.

So, what makes a good ESG report? Multiple speakers underlined the importance of demonstrating that ESG is integrated into core operational and risk management - "Do first, report second", said one of the panellists. An ESG report needs to demonstrate honesty to investors over who your business is, where its value lies, and convey a clear narrative of shared value within the community. Investors' expectation of more sophisticated information calls for

a strong ESG report that includes ambition, short, medium, and long term targets, clear baselines, details of CapEx, internal resourcing, board involvement, collaboration with peers, and risk management. A key takeaway from the event was the potential for ESG to foster the creation of enterprise value, and that just because something has no materiality to profit, doesn't mean it's not material to the value of the business.

The conference summarised three key challenges facing investor relations professionals in the next 5 years. First,

the amount and availability of information will challenge businesses to collate and synthesise more data for investors. Ensuring this information is contextualised with a clear and transparent narrative poses a significant challenge. Secondly, the communication of the necessity of climate change adaptation will need to underpin many firms' ESG reports. Doing this while keeping the interest of all types of investors will not be easy. Lastly is the increased scrutiny from all stakeholders. The magnifying glass has never been closer, particularly to listed companies, and the bar is rising.



Image: Cress CEO Julia Seddon with award recipient Lachlan Feggans, Sustainability and Corporate Director Asia Pacific at Brambles.



Modern Slavery in Food and Fibre

Modern slavery is all work or service extracted from a person under the menace of penalty, and for which the person has not offered themselves voluntarily. Despite the out of sight – out of mind principle making it very easy to ignore, it is estimated that 40 million people worldwide are victims of modern slavery. Considering the focus of this newsletter, let us explore the prevalence of modern slavery in the agricultural industry.

Modern slavery can be difficult to detect, let alone measure, because it comes in many forms. These include human trafficking, forced labour, debt bondage, descent-based slavery, child slavery, and forced early marriage. Each of these are nuanced and complex issues in and of themselves, but a few key factors usually drive modern slavery:

- Weak rule of law/governance in producing countries
- Lack of transparency or accountability in supply chain
- Social and gender inequities
- Effects of conflict

In a globalised economy where a garment's lifecycle may involve inputs from several countries before reaching its end retailer, it has become easier for unethical labour practices arise and remain hidden along the way. For example, the disorganisation and segmentation of the fashion supply chain makes traceability very challenging, & nearly impossible in some cases. The upstream (pre-customer) process of a strand of cotton fibre includes farmers, traders, ginners, spinners, millers, launderers, CMT (cut, make, trim) manufacturers, distributors, and retailers. This complexity of this process suggests how unethical labour practices can slip through the cracks. Vertical integration can reduce the number of players in the process, but the fashion industry remains largely horizontal.

The Modern Slavery Act 2018 (Cth) requires large Australian entities (over \$100m) and foreign entities doing business in Australia to report annually on the risks of modern slavery in their operations and supply chains, and the actions taken to address those risks. This reporting must demonstrate genuine progress towards the elimination of slavery under the Act. Doing this is represents much more than an ethical good. The Australian Council of Superannuation Investors has identified

four potential impacts for non-compliance of modern slavery reporting obligations:

- Reputation damage,
- Operational disruptions,
- Inefficient diversion of resources,
- Legal consequences.

Companies must embed mechanisms to dig deeper than the first layer of their supply chain. cursory investigations often miss underlying risks. Many companies are working towards practices that address risks of exploitation, bribery, corruption, and worker safety. Others are collaborating within their sectors, building awareness in their organisations, developing stronger relationships with suppliers and strengthening ethical sourcing programs with strict internal frameworks, contract review and auditing.

Understanding which of these strategies is best for your business can be a daunting task. As sustainability specialists, Cress Consulting is ideally positioned to assist you in identifying the risk of modern slavery occurring in your business and set out steps to address that risk. If you'd like to find out more please contact us [here](#).



Cress has the expertise to help identify pathways to a more sustainable, secure future and can help you design and implement strategies to reduce risk and increase self-reliance. As a Group, our sustainability, risk and water specialists are supported by more than 100 engineers and scientists across the world.

Providing expert guidance, we identify the material sustainability risks and opportunities in your business, uncovering opportunities for sustainable growth, resource efficiency and water security so you feel like you have the best information to make decisions and find ways to maintain profitability and growth in a changing and increasingly challenging environment.

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