



Committee Secretary
Senate Standing Committees on Rural and Regional Affairs and Transport
Parliament House
Canberra ACT 2600
Via email: rrat.sen@aph.gov.au

**Submission to the Senate Rural and Regional Affairs and Transport Legislation Committee
Inquiry into the Definitions of Meat and Other Animal Products**

Dear Committee Members,

v2food welcomes the opportunity to participate in this Senate Inquiry. In providing our responses to the terms of references we have taken the opportunity to demonstrate the significant potential plant protein offers to Australia – including Australian farmers and the regions.

This potential is not ‘pie in the sky’, it’s already started. The flood gates have already been opened globally, with Australia following this lead.

Critically, the emerging plant and alternative protein industry does not come at the expense of animal protein. This is the central premise of v2food’s submission; plant and alternative proteins have not – and are not forecast to – adversely impact the livestock or traditional protein sectors.

Throughout our submission, we have used data of the red meat industry and government to demonstrate our points;

- There is no evidence of impairment, and there is no evidence of future impairment
- There is no evidence of consumer confusion
- Plant proteins are driving innovation and growth in the sector
- Transformation of the agrifood sector is underway

v2food is proudly Australian-owned and operated and backed by the best of our nation’s scientific and commercial food sector. Our partners, including CSIRO, Main Sequence Ventures, Competitive Foods Australia and Australian Country Choice, are the best in their field – and with their support we have carved out our place as Australia’s leader in the emerging global plant protein sector.

v2food would welcome the opportunity of taking questions from the Senate Committee during your public hearings.

Yours sincerely,

Nick Hazell
CEO & Founder

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SENATE RURAL AND REGIONAL AFFAIRS AND TRANSPORT LEGISLATION COMMITTEE INQUIRY

Definitions of meat and other animal products

AUGUST 2021

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1. EXECUTIVE SUMMARY

v2food is pleased to provide the following responses to the specific matters under inquiry by the Rural and Regional Affairs and Transport References Committee into the definitions of meat and other animal products.

v2food has included several examples in our response to specific Terms of Reference. Our intention is to provide commercial examples to the Committee to support our overall thesis that plant and alternative proteins have not – and are not forecast to – adversely impact the livestock or traditional protein sectors, but in fact support the growth and prosperity of both.

This is best captured by the following extract from AgriFutures' 2019 report, 'The Changing Landscape of Protein Production':

Overall, the emerging market for alternative proteins should be seen not as a threat to existing production systems but as a means of diversifying choices for producers, processors, and consumers to fill the growing gap between global protein demand and supply¹.

– AgriFutures

There is no evidence of impairment

Alternative and plant proteins are gathering momentum as more consumers factor sustainability and animal ethics into their food choices. It is a David and Goliath battle, with Meat & Livestock Australia data demonstrating that domestic consumption of plant proteins has only reached 0.3% of fresh meat volume sales and 0.4% of value sales².

So strong is livestock producer confidence in their product that, when seasonal conditions improved in 2020, a surge in re-stocker demand helped push cattle prices to record highs, eclipsing prices not seen since 2016³. The Eastern Young Cattle Indicator (EYCI) rose by 52% year-on-year to average 742¢/kg carcass weight (cwt) in 2020, the highest on record⁴. It peaked again in October and November 2020, climbing to 827¢/kg cwt⁵. By 20 July 2021, the EYCI had reached 996¢/kg cwt⁶.

But while the EYCI pushed up retail beef prices, retail beef sales increased throughout 2020⁷ and beef remained the market-leading fresh meat product, accounting for 36% of Australian retail sales⁸.

¹ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

² MLA, 2020, State of the Industry, <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/mla-state-of-industry-report-2020.pdf>

³ MLA, 2021, 'Industry Projections 2021', <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/cattle-projections/feb2021-mla-australian-cattle-industry-projections.pdf>

⁴ MLA, 2021, 'Industry Projections 2021', <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/cattle-projections/feb2021-mla-australian-cattle-industry-projections.pdf>

⁵ MLA, 2021, 'Industry Projections 2021', <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/cattle-projections/feb2021-mla-australian-cattle-industry-projections.pdf>

⁶ MLA, 2021, 'Prices & Markets Statistics for the week ending Tuesday, July 2021' <https://www.mla.com.au/CachedNLRReports/21-Jul-2021-weekly-stats-20.07.21.pdf?id=637630570266957562>

⁷ MLA, 2021, 'Industry Projections 2021', <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/cattle-projections/feb2021-mla-australian-cattle-industry-projections.pdf>

⁸ MLA, 2021, 'Industry Projections 2021', <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/cattle-projections/feb2021-mla-australian-cattle-industry-projections.pdf>

These positive developments occurred at a time when the emerging plant protein industry was attracting greater interest from consumers and investors. As Red Meat Advisory Council's chair, John McKillop, said, "Australia's meat and livestock industry isn't afraid of competition - we've held our own against the tofu warriors for decades."⁹

...and there is no threat of future impairment

Numerous independent sources – including government and the red meat sector consistently demonstrate that the demand for protein – both here and overseas – will continue to grow such that plant and animal proteins can benefit, in harmony, and concurrently.

To 2030, the estimated growth for the domestic protein market is A\$19.9 billion, of which A\$3.1 billion is expected to be in alternative proteins¹⁰. This is *new* demand, i.e., room for protein categories to grow from where they are now.

...there is room for both animal-based and alternative proteins in the Australian market. Forecast global demand for protein is strong and will accommodate growth in both sectors¹¹.

- AgriFutures

As an export-oriented sector, Australia consistently produces more supply of red meat than demanded by the domestic market. Data shows the export prospects for red meat are overwhelmingly positive, with Meat & Livestock Australia predicting export demand will grow by 10% over the next three years¹².

A growing, and increasingly affluent, global population is driving growth in global demand for protein, across all categories. Meat is projected to account for 44 percent of this market in 2025¹³ with most of this growth coming from China, which is already the third largest market for Australian beef¹⁴.

While population growth drove most of the demand increases in the past, rising incomes will play a greater role going forward. As incomes rise, consumers will look to energy-dense, higher-value protein categories¹⁵, such as traditional red meat products.

But this is not an either/ or situation. This is, and needs to be, an AND. Feeding 10 billion people by 2050 will require an 'all hands-on deck' approach, with all protein producers working alongside one another, as they have done for centuries, to provide the growing population access to this essential macro-nutrient. Plant protein is not a threat to animal protein production systems but should be seen as a way of diversifying choices for producers, food processors and consumers.

⁹ McKillop, J, 2021, 'Brand Integrity Critical: Letter to the Editor', <https://www.stockjournal.com.au/story/7225832/letters-to-the-editor-april-29/?cs=4894>

¹⁰ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

¹¹ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

¹² MLA, 2021, 'Industry Projections 2021', <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/cattle-projections/feb2021-mla-australian-cattle-industry-projections.pdf>

¹³ Food and Agriculture Growth Centre (FIAL), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

¹⁴ MLA, 2021, 'Industry Projections 2021', <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/cattle-projections/feb2021-mla-australian-cattle-industry-projections.pdf>

¹⁵ Food and Agriculture Growth Centre (FIAL), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

There is, and has always been, plenty of room on the plate, on grocery shelves and in shopping trolleys for both. The data proves our point.

To ensure producers and industry actors can capitalise on these opportunities, it will be important for Australian agriculture to present a united front in the aim of producing sufficient protein for the growing population. Segregation and competition between traditional and alternative proteins providers could do more harm than good for all markets.¹⁶

– AgriFutures

There is no evidence of consumer confusion

Consumers are not being confused (or misled) by current labelling requirements for plant protein products. Peer reviewed research tells us the opposite is true. Incorporating words traditionally associated with animal products does not lead consumers to assume a product comes from an animal¹⁷. In fact, omitting functional descriptors such as “meat”, “burger” and “sausage” creates confusion, because these terms help consumers understand how a product will taste and be used¹⁸.

There is no need for labelling regulation

With the support and leadership of v2food, the Alternative Proteins Council (APC – representing plant-based and non-animal protein foods sector), is driving a voluntary guideline for companies to self-regulate the labelling of plant-based protein foods. This mirrors the approach government has adopted for other agricultural industries in the past, who have been afforded the opportunity to self-regulate where there is no objective evidence of a market failure.

There is no evidence of plant proteins restricting innovation or growth in the sector

In fact, the opposite is true. The Australian plant-based protein market has attracted significant global investment over the past year, with v2food and other plant protein companies, attracting a combined \$122 million in investor funds to support business development and regional processing facilities.

For many years the agricultural sector and its government partners have been focused on improving the competitiveness, profitability, and sustainability of the agriculture sector. This is best reflected in current government and industry plans, such as the government’s ‘ag2030’ and ‘Modern Manufacturing Initiative - MMI’, the Red Meat Advisory Council’s ‘Red Meat 2030’, and Meat & Livestock Australia’s ‘Strategic Plan 2025’.

v2food shares this commitment to supporting a thriving Australian agricultural and value-added manufacturing sector. Our expansion plan is completely aligned with the MMI, supporting the development of the Australian soy industry by building scale, boosting competitiveness, and creating sector resilience. In doing so we are also securing new export markets and building supply chain resilience by developing a new domestic supply of SPC (Soy Protein Concentrate) – a vital ingredient in many food products.

¹⁶ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

¹⁷ Gleckel, J., 2020, Journal of Animal and Environmental Law, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3727710

¹⁸ Gleckel, J., 2020, Journal of Animal and Environmental Law, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3727710

Transformation of the agrifood sector is underway

Putting the challenges of 2020 aside, there has been increasing disruption to Australia's agrifood sector for a number of years. While the sector adjusted to a COVID-normal way of doing business, consumers adjusted too, responding to snap border closures with a sharper focus on food safety, security, and origin.

This Senate Inquiry touches on only the very tip of the iceberg. Beneath the surface, our agrifood industries are poised for the transformation needed to capitalise on these accelerating trends and leverage our already strong reputation as a leading producer of clean, green, safe and reliable food. The transformation is already underway, with traditional industries like red meat setting the strategic goal of delivering socially, environmentally, and economically sustainable products, and emerging industries like plant proteins attracting increased venture capital and multinational corporation investment to deliver the same.

The very real risk of inquiries such as this, with mooted regulatory consequences, is that they threaten to restrict future investment and value-added business development in the sector, by sowing seeds of doubt amongst investors of Australia as being 'hard to do business with'.

Supporting (or at the very least, not hindering) emerging industries or technologies – in this case, plant protein industry - will help to secure Australia's long-term sovereign food security and drive sector innovation, productivity and profitability. In short, it will help to position Australia at the forefront of the global agrifood transformation.

v2food would welcome the opportunity of taking questions from the Senate Committee during your public hearings.

2. v2food & OUR ROLE IN THE AUSTRALIAN PLANT PROTEIN INDUSTRY

Key points

- v2food are Australian owned and operated; established to meet the market demand and changing consumer preferences
- v2food was established by CSIRO's commercialisation fund (Main Sequence Ventures) and Hungry Jack's owner (Jack Cowin)
- v2food are driven to be part of the solution to identify sustainable ways of producing more protein to feed 10B people by 2050. We are guided by science and responsive to market signals, community expectation and changing consumer preferences
- Our shareholders and key commercial partners are our DNA, guiding our mission, business objectives and how we operate to meet a new market opportunity.

a. Introduction to v2food

v2food is mission-driven to provide the world with new, sustainable ways of feeding an extra 2 billion people by 2050. In our short history, v2food's plant protein products have met with phenomenal market success – so much so, that we are now Australia's leading plant protein company.

v2food is proudly Australian-owned and operated and backed by the best of our nation's scientific and commercial food sector. Our partners, including CSIRO, Main Sequence Ventures, Competitive Foods Australia and Australian Country Choice, are the best in their field – and with their support we have carved out our place as Australia's leader in the emerging global plant protein sector.

Our shareholders and key commercial partners are key components of our DNA – mission-driven, guided by science, yet responsive to market signals, community expectation and changing consumer preferences. Our shareholders and partners are critical to our success. They have extensive experience in working in the Australian food production sector, in particular Competitive Foods Australia (owner of Hungry Jack's) and Australian Country Choice (the world's largest family-owned, vertically integrated cattle and beef supply chain organisation). v2food has been able to learn from them, especially with their deep connections to key buyers, processors, distributors and retail within the red meat sector.

From our inception, v2food has been guided by science to meet a growing commercial and market demand for different protein choices, reflective of changing community expectations and consumer preferences.

Since our establishment in January 2019, we have undoubtedly disrupted the market, particularly amongst traditional players in the domestic protein space. But we make no apologies for that. Our disruptor profile defines what we do, how we do it, and how we wish to be regarded by our consumers, commercial partners and society.

Our rapid growth to date is best summarised in the following timeline:

- Recipient of Series A (\$30 and Series B (\$70m) funding from Main Sequence Ventures and a mix of local and international investors.
- Developed partnership with Australian Competitive Foods who produce v2food products
- Supplier to Hungry Jacks/ Burger King in Australia, NZ, Korea, Thailand, Japan
- Established a processing plant in Wodonga, Victoria to produce textured soy protein concentrate and flavour blends
- Stocked in approximately 2000 supermarkets around Australia including Woolworths, Coles, Aldi & Drakes
- Products developed, Rebel Whopper, burgers, mince, sausages, beef, pork, lamb, chicken, available internationally
- Recipients of Start-up of the Year (2020), Product of the Year (2020), and CSIRO Entrepreneurship Award (2020).

i. Who is v2food?

v2food employs 60 people, and is led by CEO, Nick Hazell. Our founding partners are Phil Morle, Main Sequence Ventures (CSIRO's commercialisation fund) and Jack Cowin, owner of Competitive Foods Australia and Hungry Jack's.

Some of the key shareholders of v2food include:

- Main Sequence Ventures
- Competitive Foods Australia
- Horizon ventures
- Sequoia Capital
- Fairfax (Marinya)
- Temasek
- China renaissance

Critical commercial partners we work with include:

- Australian Country Choice
- Graincorp
- Essenagro
- ComGroup

And research partners include:

- CSIRO
- University Technology Sydney
- University South Australia
- University New South Wales

b. v2food is an active leader in Australia's emerging plant protein industry

We recognise we are pioneers in many respects – on the ground floor of a new and emerging industry, with a new approach to feeding the planet and new products to add to supermarket shelves and restaurant menus. We, and other plant protein start-ups like us, are moving at a rapid pace, with rapid expansion and business growth reflective of consumer demand and acceptance of our products.

Where traditional protein categories like red meat have had generations to establish and carve out their industry, we are starting from the ground floor. As a proudly Australian-owned and operated company, v2food is committed to taking a leadership role in guiding the establishment and growth of the plant protein sector in Australia. To deliver on our mission and business objectives, however more importantly to benefit Australian farmers, regions and businesses.

i. Australian Protein Council (APC)

In 2020, the Minister for Agriculture, the Hon. David Littleproud MP, convened a Working Group to explore the 'Labelling and Marketing of Plant-based Alternatives to Meat and Meat-based and Dairy products'. The resulting report is currently under consideration by the Minister.

v2food was a member of this Working Group and appreciated the opportunity to represent the plant protein sector's interests. However, with a sector as diverse as plant and alternative proteins, it was quickly recognised that an industry organisation needed to be formed to ensure the views of the collective sector were represented, not those of individual companies or interest groups.

Consequently, in March 2021, the Australian Protein Council (APC) was established to identify, progress and represent the common issues of its members, and ensure the sector's profile is not 'captured' by any other interest groups.

As a founding member of APC, v2food is guiding the establishment of the group, including its governance arrangements and terms of reference – details that were only formalised in July 2021. We are also providing commercial, real-world evidence to guide the APC's submission to this Senate Inquiry.

A key focus of the APC in the first instance is the development and agreement of voluntary labelling guidelines for the sale of plant proteins. Given v2food was an active participant and contributor to Minister Littleproud's Working Group, we are endeavouring to ensure any valid concerns of the red meat sector are addressed.

3. AUSTRALIA'S THRIVING PROTEIN SECTOR

Key points

- Protein is one of three macro nutrients and essential for human nutrition.
- The FAO has classed proteins into 6 categories and 50 sub-categories.
- Global consumer demand for protein has increased 40% since 2000. This trend is forecast to continue with increasing affluence and a growing population.
- Changing consumer preferences has seen increased demand for plant-based protein product in many markets.
- In the global protein market traditional animal protein (meat, eggs & dairy) will dominate by value, plant-based proteins will be the largest category by volume, and alternative protein will have the fastest growth rate.

a. Protein – the building blocks of life (TOR 1c)

Protein is a vital macro-nutrient and an essential building block of life. Comprised of amino acids, proteins are critical for numerous bodily functions.

Life cannot be sustained without sufficient consumption of protein in our diets. Consumers are increasingly recognising this fact, with protein content driving the food purchasing decisions of 58% of consumers¹⁹.

The United Nations' Food and Agriculture Organisation (FAO) has categorised proteins into six categories:

- Plant based
- Meat
- Eggs and dairy
- Wild catch fisheries
- Aquaculture
- Non-traditional

Across the 6 FAO protein categories, there are 50 distinct protein types, as shown in Figure 1, extracted from the Food and Agribusiness Growth Centre's 2019 report, '*Protein Market: Size of the prize analysis for Australia*'. This infographic illustrates clearly that protein is more than red meat or milk. In fact, protein is available in many forms – from traditional plant and animal sources to novel alternatives like insects, micro-algae and lab-grown meat.

While there may appear to be more protein choices on offer to consumers than ever before, in fact there has been somewhat of a protein 'renaissance' in the past decade. This has largely been driven by increased affluence in various parts of the world such as Asia, where the traditional protein sources have largely been non-animal in source.

¹⁹ Cargill, 2019, Deep dive report: The plant-based protein market, Natural Products Insider, <https://www.naturalproductsinsider.com/functional-foodsbeverages/deep-dive-plant-based-protein-market>

Figure 1: FAO's protein classifications

b. Consumer demand for protein is growing (TOR 1c)

Global protein consumption has risen 40%²⁰ since 2000 predominantly driven by population growth and increasing affluence in Asia. In 2018, global per capita protein consumption was estimated at 26kg per year on average. But fuelled by a rapidly increasing consuming class, consumption is projected to grow by 27% to 33kg in 2025²¹.

Looking further ahead, demand for protein will only increase as the global population grows in size and affluence. In 2020, it was estimated there were already 1 billion people deficient in protein²². With the global population forecast to surge to 10 billion by 2050, production of protein will need to increase by 46% from 2016 levels²³ to meet demand.

To put those numbers in perspective, meeting the projected 2050 demand for protein with beef and veal alone would require the global production of nearly 95 million tonnes carcass weight equivalent (cwe) – up from 65.97 million tonnes cwe in 2016²⁴ – an impossible task given the finite land, water and nutrient resources available to expand animal protein under current production practices.

²⁰ Food and Agriculture Growth Centre (FIAL), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

²¹ Food and Agriculture Growth Centre (FIAL), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

²² FAO, 2020, FAO predicts global shortage of protein-rich foods, <https://allianceforscience.cornell.edu/blog/2020/07/fao-predicts-global-shortage-of-protein-rich-foods/>

²³ CSIRO & KPMG, 2018, Food for Health: trends and opportunities in health and wellness for the ASEAN region, <https://assets.kpmg/content/dam/kpmg/au/pdf/2018/food-for-health-trends-asean-region-csiro-kpmg.pdf>

²⁴ MLA, 2018, State of the Industry report, <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/soti2018.pdf>

“One of the biggest challenges facing Australia’s \$18 billion red meat industry is not from alternative proteins, but how we respond to the opportunities to meet unprecedented growing global demand for protein.”²⁵
–Meat & Livestock Australia

Meat and Livestock Australia (MLA) consumption outlook indicates that meat production, or supply, cannot keep up with demand. [Figure 2](#) demonstrates that even with the plant proteins sector growing in parallel, global beef consumption is forecast to grow in 5 of its 6 key markets²⁶, supported by population and economic growth.

Figure 2: MLA’s beef consumption outlook



Supported by population and economic growth, demand for meat is growing at a faster pace than traditional meat production can sustain. As such, the popularity of meat alternatives is growing and research indicates that, as protein demand evolves in the future, traditional growth drivers may shift towards more contemporary ones (dietary shifts for health and ethical reasons, government regulations, environmental constraints and technological advances). While traditional meat is expected to dominate the protein mix for decades ahead, supply growth will be constrained, and the shortfall is expected to be offset by emerging plant-based alternatives and expanding aquaculture production.

- Meat & Livestock Australia

²⁵ MLA, 2020, Stop the denigration – time for a truthful conversation, <https://www.mla.com.au/news-and-events/industry-news/stop-the-denigration--time-for-a-truthful-conversation/#>

²⁶ MLA, 2020, Global Beef Snapshot, <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/os-markets/red-meat-market-snapshots/2020/global-beef-snapshot-jan2020.pdf>

Regardless of the data source – MLA, ABARES, CSIRO, KPMG – the data demonstrates there is no need for an ‘us or them’ battle between plant and animal protein producers over market share. There is significant unmet demand for protein, here and overseas, now and in the future, to allow Australian livestock and grains sectors to grow alongside one another.

“...we found there are huge opportunities globally in both the traditional and alternative protein markets. There will be a rise in consumption of alternative proteins, but people will also continue to eat meat – the two industries can co-exist and can complement each other.”²⁷

– AgriFutures

c. Changing consumer preferences are driving growth of plant proteins (TOR 1b, c)

Increasingly over at least the past decade, community expectations and consumers preferences have been changing.

Innumerable studies – especially those since Covid-19 – have shown the increasing trend of LOHAS (Lifestyle of Health and Sustainability) or values-based consumers. Consumers are not only indicating an ‘intent’ to purchase products with high ESG (Environment, Social, Governance) values but are physically purchasing them. What might have been viewed as a ‘fad’ a few years ago, is fast becoming a ‘locked in’ trend. Across a range of agricultural industries, the social license to operate is being pressured by consumers who will not support food systems (or brands) whose values do not align with their own.

The heightened Covid-era public awareness of food security has amplified these trends.

“The challenges of the last 12 months have brought home to us just how important considerations like food security, safety and sustainability are to our customers and our community, both at-home and abroad, and how important our customers and our communities are to us.”

- Meat & Livestock Australia

Today’s community expects more of business in general, and farmers specifically. The agriculture sector manages 55% of Australia’s landmass and 25% of the nation’s water resources in producing its 1.9% of value added (GDP) and employing 2.6% of the population²⁸. And while 87% of Australian consumers trust rural industries to do the right thing, many consumers also think farmers are contributing to climate change and would buy products to minimise impact on animal welfare²⁹. In a trend echoed around the world, as the Australian

²⁷ AgriFutures, 2021, Progressive proteins paving the way for fresh food alternatives, <https://www.agrifutures.com.au/news/progressive-proteins-paving-the-way-for-fresh-food-alternatives/>

²⁸ ABARES, 2021, Snapshot of Australian Agriculture, <https://www.agriculture.gov.au/abares/products/insights/snapshot-of-australian-agriculture-2021>

²⁹ Edelman, 2020, Edelman Trust Barometer, https://www.edelman.com.au/sites/g/files/aatuss381/files/2020-02/2020%20Edelman%20Trust%20Barometer%20Australia_Media.pdf

community has become more focused on environmental issues, climate change, animal welfare, sustainability, and food safety, they have also become increasingly disconnected with the source of food production. Fairly or unfairly, the onus has come back on farmers in many cases to demonstrate their social license and responsible practices.

“A farmer’s freedom to operate is enabled by an industry’s social licence, defined as the privilege of operating with minimal formalised restrictions based on maintaining community trust. Building trust isn’t just giving consumers more science, more research or more information.... Research shows it’s about demonstrating that you share their values when it comes to topics they care about most – safe food, quality nutrition, outstanding animal care and environmental stewardship.”

- AgriFutures

There are many industries and individual farmers who are committed to maintain this licence to operate and have taken a leadership position, including programs and practices such as:

- Carbon - Red Meat’s Carbon Neutral 2030 (CN2030)
- Sustainability - the dairy, beef, and sheep sustainability framework
- Animal welfare - Australian pork producers were the first to ban sow stalls.

Animal agriculture will struggle to supply the world’s growing demand for protein using the finite resources available in current production systems as the production of animal-sourced foods generally has a greater impact on land use, freshwater consumption and greenhouse gas (GHG) emissions than plant-sourced foods. However, this is a very broad generalisation and within every system (plant and animal-sourced) there are production methods that can have positive or negative environmental implications³⁰

- AgriFutures

For protein producers specifically, four key consumer trends³¹ are shifting demand for particular sources of protein:

- dietary shifts for health and ethical reasons - regional surveys show that 27% of Europeans³² and 33%³³ of Americans intend to eat less meat over the coming years, and 14% of Australians are making concerted efforts to avoid red meat³⁴,

³⁰ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

³¹ Food and Agriculture Growth Centre (FIAC), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

³² ING Bank (2017). The protein shift: will Europeans change their diet? <https://www.theguardian.com/world/2016/jun/20/chinas-meat-consumption-climate-change>

³³ Live Mint (2018). “No vegetarianism is not growing in India” <https://www.livemint.com/Politics/dWUqT4epdPTHNAYuKYVThK/No-vegetarianism-is-not-growing-in-India.html>

³⁴ Australian Bureau of Statistics (2016). “Australian health survey: consumption of food groups from the Australian Dietary Guidelines, 2011-12” <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.012-2011-12-Main%20Features-Lean%20meats%20and%20alternatives-13>

- ii. government regulations - in many countries such as China, Germany, Brazil, Sweden and Qatar, there has been advocacy of plant-based diets over animal-based diets³⁵,
- iii. environmental constraints - energy consumption, emissions, land usage and water consumption could reduce the supply of particular protein types³⁶, and
- iv. technological advances - R&D facilitating new, more productive and scalable methods of supplying protein foods, e.g., lab-grown meat³⁷.

Australian and multi-national food retailers are tapping into these trends, promoting plant and alternative protein products to consumers across the world. The sector has been gathering pace – and attention – over the past 18 months, with some of the meat industry's biggest meat processors such as US giants Cargill, Tyson Foods and multinational JBS, all investing in plant protein substitutes for traditional meat.

"It may initially be a costly product development exercise, but if I was running Tyson Foods - America's biggest meat processor - of course I'd be getting into plant-based protein offerings, as well."

- Don Mackay, former chair of the Red Meat Advisory Council

Understanding consumer trends towards alternative proteins and industry implications are key to proactively engaging with, and responding to, these changes³⁸

- AgriFutures

i. Plant proteins have been on Australian dinner plates for generations (TOR 1c)

Plant proteins are not new; they are simply another crop grown by farmers. Plant proteins have been a feature in the diet of generations of Australians, stocked on our supermarket shelves for decades. It is not uncommon for the average Australian dinner plate to feature both plant and animal proteins, all grown by Australian farmers.

In Australia, consumers recognise plant proteins as legumes and oilseeds such as soybeans (a particular focus of v2food), chickpeas, lentil, faba beans, and lupins etc. However, the FAO protein categorisation (at Figure 1) shows that plant proteins also include grain crops like rice and wheat, fruit and vegetables, and nuts. Like animal protein, plant proteins are grown on farm and then processed, ready for consumers to eat. The only difference is now, companies like v2foods make it easier to turn plant proteins into delicious meals, offering recognisable products for convenience-driven consumers.

³⁵ Food and Agriculture Growth Centre (FIAL), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

³⁶ Food and Agriculture Growth Centre (FIAL), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

³⁷ Food and Agribusiness Growth Centre, FIAL 2019, Protein Market: Size of the prize analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

³⁸ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

ii. Nutritional profile on plant-based proteins (TOR 1b)

There is a rapid transformation occurring within the modern food industry as food manufacturers focus on the creation of plant-based products that are more ethical, sustainable and healthy than the animal-based alternatives. However, these products must also be tasty, convenient, and affordable, otherwise consumers will not purchase them³⁹.

- McClements & Grossman

Our products are a safe, healthy, and tasty alternative source of protein for consumers seeking something different to traditional animal protein.

Whilst individual sources of protein do vary in the composition of specific amino acids (the protein building blocks that in aggregate determine protein nutritional quality), there are many plant-based sources of protein that fully meet human nutritional needs and closely match the nutritional values of animal sources.

Further to the innate nutritional composition, almost all protein food sources require further processing (eg in an abattoir, by milling to flour) and cooking to be palatable and to enable the nutrients to be bioavailable to the consumer.

Each food source brings its own nutritional values, being proteins, fats, carbohydrates, fibres and micronutrients such as minerals and vitamins, and no single food can supply all the nutrients required, which is why dietary advice is to consume a wide variety of foods to ensure a complete and balanced diet.

v2food plant protein products are formulated to be comparable to beef on a gram for gram basis including Protein, Iron, Zinc, Vitamin B3, Vitamin B6 and Vitamin B12. v2food products, like all plant products, do not contain cholesterol and provide a good source of fibre.

d. Plant proteins are not a threat to animal protein (TOR 1a, c, d)

Alternative proteins currently comprise 5% of the total global protein market. With finite resources to grow more meat (land, nutrients and water), and increasingly sustainability-driven consumers, food companies like v2food are turning their minds to creating plant protein products that meet the world's growing demand for protein in a responsible, sustainable way.

Since 2015, a raft of plant protein start-ups like v2food have emerged across the world to provide consumers with greater choice in their protein options. However, compared to animal proteins, plant protein remains a small sector. In 2019, alternative (including plant) proteins held a marginal share of \$2.2 billion of the overall \$1.7 trillion global meat market⁴⁰.

In Australia, plant proteins have not yet reached scale, and consumption has only reached 0.3% of fresh meat volume sales and 0.4% of value sales⁴¹. Thus while market forecasts point

³⁹ McClements, D & Grossman, L, 2021, 'The science of plant-based foods: Constructing next-generation meat, fish, milk, and egg analogs', <https://onlinelibrary.wiley.com/doi/full/10.1111/1541-4337.12771#crf312771-bib-0167>

⁴⁰ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

⁴¹ MLA, 2020, State of the Industry, <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/mla-state-of-industry-report-2020.pdf>

to a continued increase in global demand for alternative proteins in the next 10 years, that growth will not present a material threat to the viability of animal agriculture by 2030⁴².

Further, the new demand for animal protein created by the rising global population is expected to outweigh any additional market share that alternative proteins may gain in the near future⁴³.

“The reality is plant-based proteins are not new, with the trend being to replicate the sensory experience of natural and farm grown meat existing for several decades. But we are still not seeing a huge groundswell of people becoming vegetarian or turning away from red meat at retail.”⁴⁴

– Jason Strong, Meat & Livestock Australia

By 2025, the global protein market will reach a volume of 271 million tonnes, at a value of \$A513B. This is a 20% increase by volume and 26% increase by value on 2018 levels⁴⁵.

FIAL's analysis, shown in Figure 3, shows that this \$513 billion market in 2025 will be dominated by traditional animal protein (meat, eggs & dairy) on a value basis, with plant-based proteins representing the largest category by volume.

The emerging plant and alternative proteins market does not present a threat to existing animal protein production, but it does offer real and significant opportunities for Australian grain growers to diversify their production systems to fill the growing global protein deficit in a sustainable way.

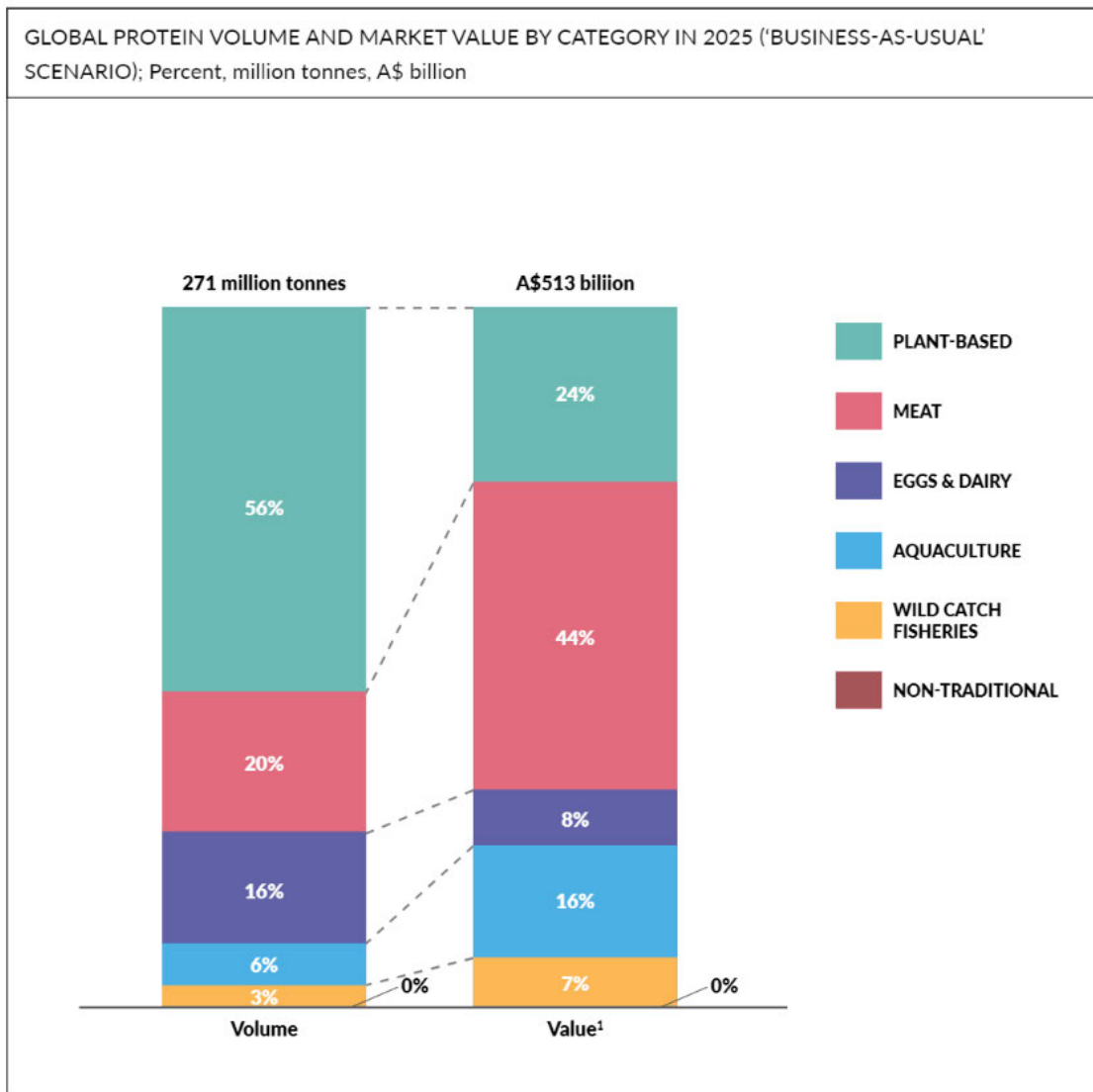
⁴² AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

⁴³ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

⁴⁴ MLA, 2020, Stop the denigration – time for a truthful conversation, <https://www.mla.com.au/news-and-events/industry-news/stop-the-denigration--time-for-a-truthful-conversation/#>

⁴⁵ Food and Agriculture Growth Centre (FIAL), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

Figure 3: Global Protein volume and value by protein category (Source: FIAL 2019)⁴⁶



1. Based on 2017 prices; FAO producer price data to proxy for plant-based, meat, eggs, and dairy prices; GlobeFish European Fish Report for aquaculture and wild catch fisheries; available market research for non-traditional proteins.
Source: FAO statistics; AlphaBeta analysis

“The report was compiled to help us understand the future of the protein market following industry concerns that traditional proteins could be at risk of losing market share with an increase in vegetarian, vegan, flexitarian and meat reducer diets.

Instead, we found there are huge opportunities globally in both the traditional and alternative protein markets. There will be a rise in consumption of alternative proteins, but people will also continue to eat meat – the two industries can co-exist and can complement each other.”⁴⁷

– AgriFutures

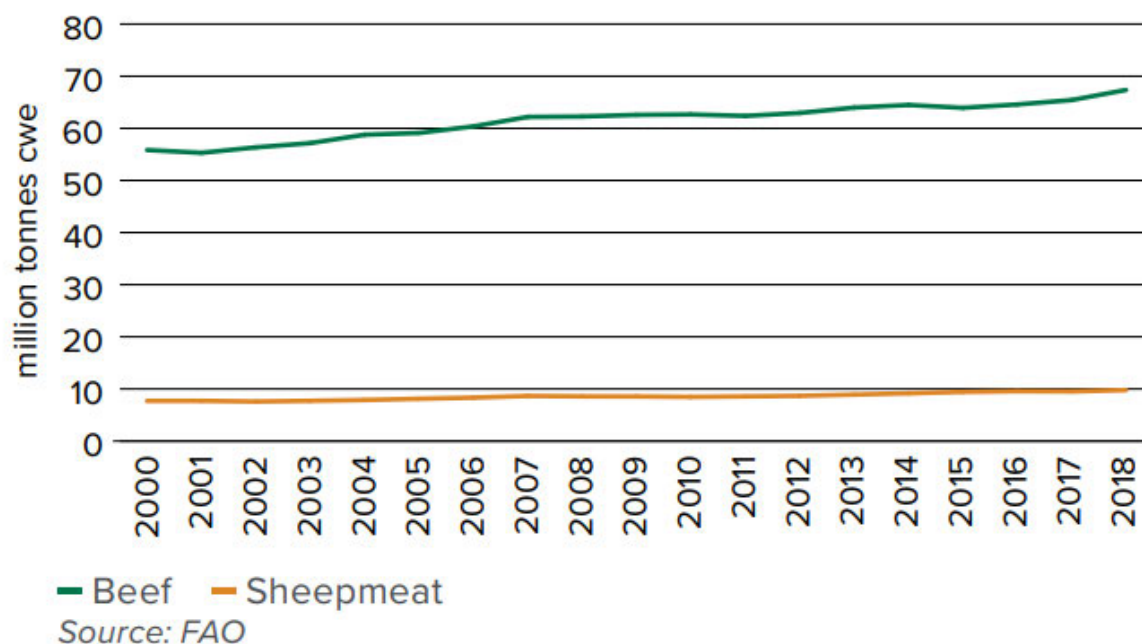
⁴⁶ Food and Agriculture Growth Centre (FIAL), 2019, Protein Market: Size of the Prize Analysis for Australia, <https://workdrive.zohopublic.com.au/external/4xHhCwTPeA-7DLi0N>

⁴⁷ AgriFutures' 2020 report - The Changing Landscape of Protein Production: <https://www.agrifutures.com.au/news/progressive-proteins-paving-the-way-for-fresh-food-alternatives/>

- i. There is no evidence of impairment of the Australian meat category (TOR 1d)

The following graphs are extracted from MLA's State of the Industry report in 2020⁴⁸ to highlight the long-term trend of the increase in global red meat production (supply) – and consumption (demand).

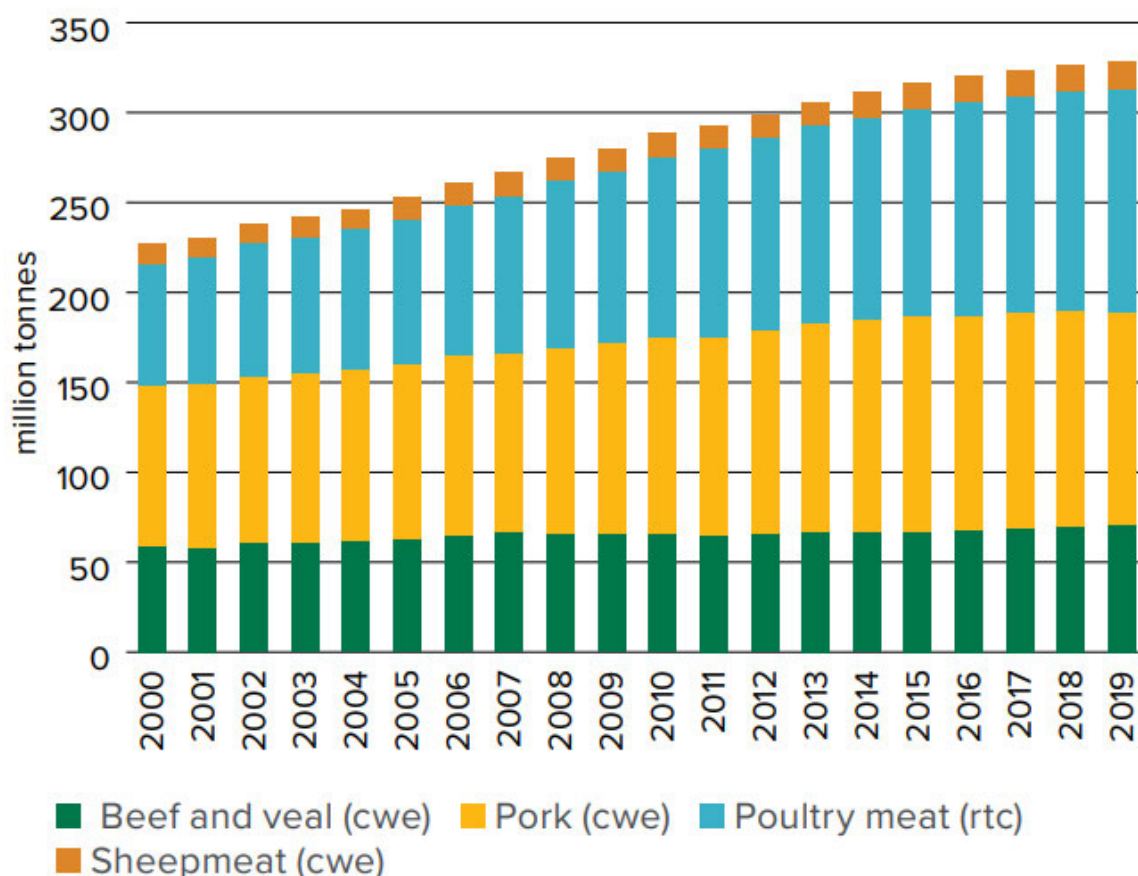
Figure 4: Global Beef & Sheepmeat production (Source - MLA 2020)⁴⁹



⁴⁸ MLA. State of the Industry 2020. <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/mla-state-of-industry-report-2020.pdf>

⁴⁹ MLA, 2020, State of the Industry, <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/mla-state-of-industry-report-2020.pdf>

Figure 5: Total Global Meat Consumption (Source - MLA 2020)⁵⁰



Source: OECD-FAO

"We in the red meat industry don't have to be frothing at the mouth about these new products because we have products which consumers still want and will pay extra for. To feed the world we're likely to see new markets open up for traditional animal protein blended with cultured (lab) meats or vegetable protein. There's nothing wrong with that."

- Don Mackay, former chair of the Red Meat Advisory Council

This positive trend is also highlighted by the projections or forecasts of the Red Meat Advisory Council (RMAC): doubling production by 2030⁵¹ – and MLA's strategic objective: double the value of sales by 2025⁵².

The red meat sector is worth \$28.5B (2018/19) to Australia's national economy.

- It has a very long and proud history mostly in regional Australia producing – largely – raw commodity meat products. It employs 190,000 people directly.
- Meat – or animal protein – is produced by farmers – growing beef, lamb, chicken, milk, pork, eggs, goat and other animal protein products.

⁵⁰ MLA, 2020, State of the Industry, <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/mla-state-of-industry-report-2020.pdf>

⁵¹ RMAC, 2019, RedMeat 2030, <http://rmac.com.au/wp-content/uploads/2021/05/RedMeat2030.pdf>

⁵² MLA, 2020, Strategic Plan 2020-2025, <https://www.mla.com.au/globalassets/mla-corporate/about-mla/documents/planning--reporting/Strategic-Plan-2025.pdf>

- It produces more than required for domestic consumption, exporting 70% of its produce, generating \$17.2B (2018/19) in export income for the national economy.
- The Australian meat sector has scores of industry associations and organisations representing its interests in various ways. It is an established industry.

By comparison the plant and alternative protein sector is a new and emerging industry.

- Currently it is worth \$3B⁵³ value-add and employs 10,500 people.
- While Australian farmers produce a range of plant proteins – peas, legumes, faba beans, soybeans, lupins etc., plant protein producers like v2food currently have to rely on imported protein because, unlike its livestock counterpart, the plant protein industry in Australia does not have the infrastructure to process raw plant commodities into finished products at scale.
- Despite these challenges, Australia's plant protein sector produces more than required for domestic consumption. This presents an export opportunity, enabling Australian plant proteins producers to tap the \$5B emerging sector. v2food is one company who have already been able to tap the growth. We are already exporting throughout Asia, including the supplier of plant protein to Burger King in Japan, Thailand and the Philippines. This export market and potential is forecast to grow not only for us, but other Australian companies.

As an emerging industry, the Australian plant protein sector has many challenges to navigate, to unlock the latent opportunity estimated conservatively to be between \$3-6B in the next few years.

ii. There is no evidence of consumers being confused, or misled, by the way plant protein products are currently labelled (TOR 1a)

A key concern raised by the red meat and animal protein sector is that the labelling of plant and alternative protein products confuses consumers. Despite these claims, no evidence to this effect was presented to the Plant-based Alternatives Labelling and Marketing Working Group convened in 2020 by Minister Littleproud.

In contrast to these claims of consumers confusion due to the adoption of qualifiers of descriptors on plant-based protein products, consumer research from the United States demonstrates the opposite.

The conclusions were that the use of animal-associated descriptors or images for plant protein products does not result in consumers mistakenly believing these products contain animal protein⁵⁴.

In fact, the opposite was found to be the case; not using such descriptors created confusion.

Further the study demonstrated that functional descriptors like mince, sausage etc., are essential to help a consumer understand how the product will taste and how to cook and eat it. If the goal of labelling laws is to improve consumer knowledge and prevent confusion, then removing functional descriptors like “meat” would actively undermine those efforts.⁵⁵

⁵³ Food and Agriculture Growth Centre (FIAL), 2020, Capturing the Prize, <https://workdrive.zohopublic.com.au/file/qx5769e1e310483ee4389b5d9f6cc55e768fe>

⁵⁴ Gleckel, J., 2020, Journal of Animal and Environmental Law, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3727710

⁵⁵ Gleckel, J., 2020, Journal of Animal and Environmental Law, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3727710

iii. Truth in Labelling (TOR 1a)

A key related matter raised in the Plant-based Alternatives Labelling and Marketing Working Group was truth in labelling.

Ingredient qualifiers such as ‘plant-based’, ‘vegetarian’, ‘made from plants’, ‘meat-free’, or ‘meatless’ assist consumers to understand the ingredient content of the products.

Utility terms such as mince, burgers, patties, sausages, koftas - not proprietary to any company or sector – are helpful to assist consumers understand how to use this new product category. This is reflected in some of v2food’s marketing – “looks like, cooks like meat”.

Perhaps the more controversial uses are descriptors such as ‘beef-style’ or ‘lamb flavour’. While the relevant legislation in Australia does not preclude that use of such terms, v2food is working closely with the APC and its members to develop a voluntary guideline to address the labelling of plant protein products.

4. PLANT PROTEIN PRESENT OPPORTUNITIES FOR GRAIN GROWERS (TOR 1c)

Key points

- Plant proteins present a significant opportunity for Australian grain growers. By 2030, the projected value of Australia's alternative protein industry (including plant proteins) ranges from \$3.1B⁵⁶, to \$5B creating 6000 new jobs by 2030⁵⁷, to \$6.6B including \$2.5B⁵⁸ in new export income (CSIRO).

Despite the variation in estimates, the consensus among commercial, government, statutory, private and independent entities – including analysis by CSIRO⁵⁹ ⁶⁰, AgriFutures, Food & Agribusiness Growth Centre (FIAL)⁶¹, KPMG, RaboBank⁶² – is that plant and alternative proteins will greatly benefit the Australian economy, offering a significant growth opportunity for Australia, Australian farmers and businesses. Along with this consensus is the understanding that Australia should have the opportunity to establish ourselves as a world leader, just as we have done with animal proteins.

The dissenting voice to this conclusion is an element of the domestic red meat sector, whose sustained attack on plant and alternative proteins persists despite a significant and growing body of evidence proving there is no adverse outcome for the animal protein sector.

"We're seeing industries such as grains building new protein extraction plants to capture market demand. It highlights how a traditional industry, grown in abundance in Australia, can add significant value to industry growth. It's an exciting landscape to be part of with ample opportunity. We know for some people the non-animal option will always be first choice, but consumers who like to make choices based on potential planetary impact have more options than ever before. For the farmer, now is an ideal time to consider how their industry might set themselves apart in the expanding global plant protein market."

- Richard Heath, Australian Farm Institute

⁵⁶ AgriFutures, 2020, The Changing Landscape of Protein Production, <https://www.agrifutures.com.au/wp-content/uploads/2020/02/20-001.pdf>

⁵⁷ Food and Agriculture Growth Centre (FIAL), 2020, Capturing the Prize, <https://workdrive.zohopublic.com.au/file/qx5769e1e310483ee4389b5d9f6cc55e768fe>

⁵⁸ CSIRO & FIAL, 2017, Food and Agribusiness Roadmap for unlocking value-adding growth opportunities for Australia <https://workdrive.zohopublic.com.au/file/qx576f1d48ff3165d4ead82d29dda901909ee>

⁵⁹ CSIRO & FIAL, 2017, Food and Agribusiness Roadmap for unlocking value-adding growth opportunities for Australia <https://workdrive.zohopublic.com.au/file/qx576f1d48ff3165d4ead82d29dda901909ee>

⁶⁰ CSIRO & KPMG Food for Health Trends: Trends and opportunities in health and wellness for the ASEAN region (2018) <https://assets.kpmg/content/dam/kpmg/au/pdf/2018/food-for-health-trends-asean-region-csiro-kpmg.pdf>

⁶¹ Food and Agriculture Growth Centre (FIAL), 2020, Capturing the Prize, <https://workdrive.zohopublic.com.au/file/qx5769e1e310483ee4389b5d9f6cc55e768fe>

⁶² Rabobank, 2020, Getting Granular with plant based meat substitutes, <https://www.rabobank.com.au/commodity-sector/grains-sector/2020/11/20/04/22/harvest-hits-2020-getting-granular-with-plant-based-meat-substitutes/>

a. v2food's plan to grow the sector in Australia (TOR 1c)

v2food's plant protein products have met with phenomenal market success – so much so, that we are now able to focus on expanding our business. However, our rapid growth will not sacrifice our mission – to provide the world new, sustainable ways of feeding an extra 2 billion people by 2050 – which guides every decision we make, every day, in all parts of the business.

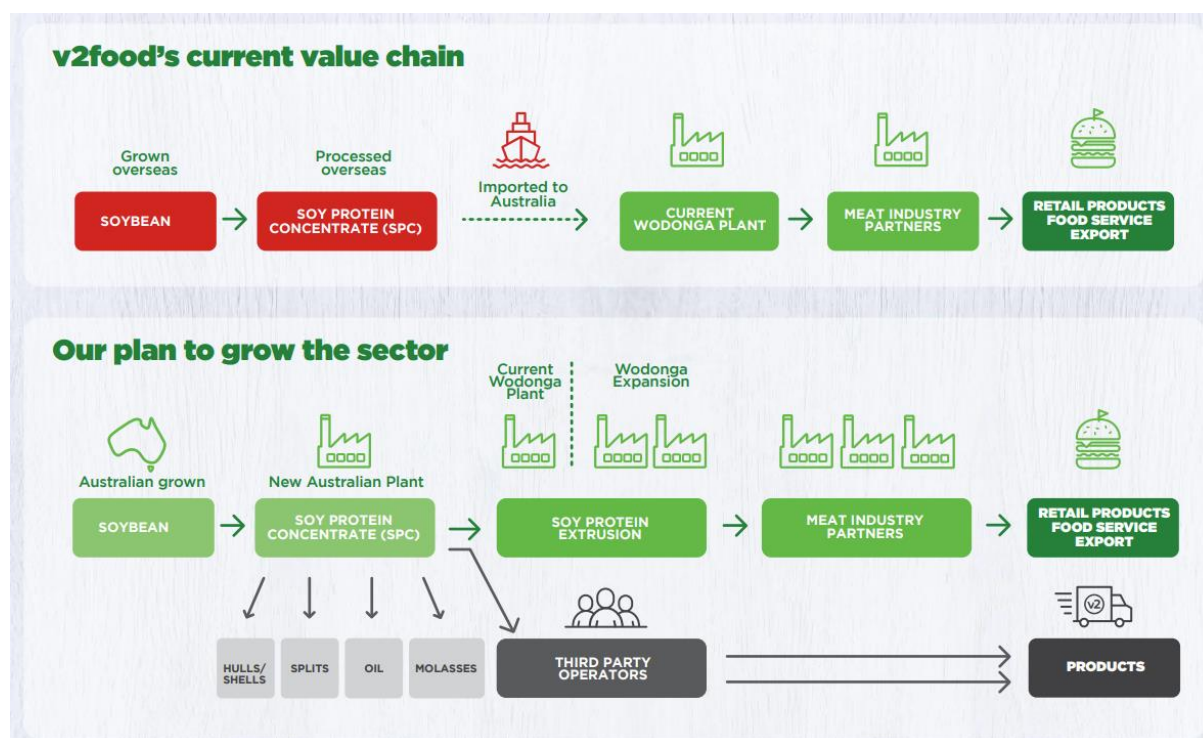
Like the Australian Government, v2food is committed to supporting a thriving Australian agricultural and value-added manufacturing sector. Our business strategy is completely aligned with the recently announced Modern Manufacturing Strategy – building scale, boosting competitiveness, and creating sector resilience.

Our process is simple – we take Soy Protein ingredients and convert them into plant-based protein foods such as mince, burgers and sausages, using the meat industry and use existing meat supply chains to distribute into food service and retail.

At our purpose-built \$20 million dollar Wodonga processing plant, we take SPC and combine it with other ingredients to create our patented v2 mix. This mix is then sent to contract processing facilities, such as Australian Country Choice and Competitive Foods which are operated by our partners in the meat processing industry. It is here where it is converted into retail products, distributed to Australian supermarkets such as Coles, Woolworths and Aldi, to numerous restaurants, and exported to our growing export markets in Asia.

However, driven by sustainability and the desire to support Australian farmers, we plan to make two big changes to the way we do business. Firstly, to replace imported SPC with locally-produced SPC from Australia-grown soybeans. And secondly to expand our regional plant at Wodonga to provide the capacity to extrude SPC from Australian soybeans.

Figure 6: Snapshot of v2food's current, and expanded, value chain.



Our proposed Protein Concentrate Extraction Plant will accommodate growth in demand for v2 products. However more importantly, it will also provide opportunities for third-party operators to utilise extraction plant co-products to develop market share for soy in high-value, human-grade food products, such as cooking oil, molasses and unrefined gums.

Co-products, such as hulls, oil and molasses, have existing markets in Australia, including as stockfeed. Australia currently imports soymeal as a key ingredient in livestock feed and Soy oil, some of which goes into infant formula for export. The switch to Australian-made and grown soymeal, processed in a manufacturing plant such as v2food's proposed extraction plant, would see the development of an innovative but perfectly natural collaboration. This collaboration involves Australian grain growers supplying our livestock sector with stockfeed products (like soymeal and molasses), while also supplying the domestic and global consumer market with plant protein foods.

Markets are emerging in Australia and overseas for off-grade or low-quality legumes to be utilised in protein extraction for addition to various products. These opportunities could provide floors for commodity prices due to their forecasted increased demand, which were formerly only suitable for livestock feed.

– AgriFutures

b. Benefits to Australia's grains industry & grain growers (TOR 1c)

Australia is well-placed to lead the world in the plant protein boom – capitalising on our strong, reliable grain production industry with its reputation for clean, green agricultural products and sustainable growing practices.

Australian grain growers deserve the opportunity to benefit from new market opportunities that will provide more competition in the market, security of an ongoing customer, and value-add premiums for their product.

v2food alone could revolutionise the Australian soy industry, requiring triple the current levels of domestic soybean production to meet demand for v2 products. We plan to pay a premium to partner with Australian soy growers to secure a reliable supply under long-term contract arrangements. We are already working with the grains industry to build grower awareness and interest in our proposal.

Creating a dependable market - at premium prices - will give soy growers the confidence to turn what has traditionally been an opportunistic crop based on seasonality, into a routine high-value part of their annual crop rotation. It will also create more competition in the marketplace, giving Australian soy growers a high-value market alternative to stockfeed.

Secure, long-term value-add opportunities are exactly what Australian grain growers need, still reeling from prolonged drought, subdued international commodity prices and a fractious trading relationship with China – not to mention a mouse plague decimating what would have been a bumper 2021 crop.

We have already demonstrated that the plant protein sector's global growth and profile are being driven by changing consumer preferences for ethical and sustainable food. The red meat industry's attacks will not limit this natural growth or prevent plant protein companies from bringing their products to Australia. Like v2food, these companies are disruptors, accustomed to the challenges of taking on an established industry.

5. ALIGNMENT WITH GOVERNMENT POLICY & INDUSTRY DIRECTION (TOR 1e)

Key points

- **The establishment of plant protein sector in Australia is fully aligned with Australian Government's strategies and policies and programs that foster the advancement of Australia's agriculture and domestic manufacturing sectors.**

Our mission is consistent with the Delivering Ag2030⁶³ strategy released by Minister Littleproud in May 2021 – specifically to drive job creation and economic growth through:

- Trade & exports
- Stewardship
- Supply Chains
- Innovation & Research
- Human Capital.

Our business strategy is completely aligned with the recently announced Modern Manufacturing Strategy – building scale, boosting competitiveness, and creating sector resilience. In particular, v2's objectives are aligned with the Food and Beverage Roadmap⁶⁴ top three growth opportunity priorities:

- Smart food and beverage manufacturing for consumer-driven products
- Innovative foods and beverages, and
- Food safety, origin and traceability systems to enhance quality and assurance required in domestic and international markets.

The outcomes we seek to achieve for v2food, and the establishment of the plant protein sector, will contribute to the government's National Food & Beverage opportunities for manufacturing:

- Strong supply chain and collaboration
- Implement Industry 4.0 opportunities to expand manufacturing
- Growth of Australia's attractiveness in the global market for investment, and premium products
- Reducing non-competitive costs, minimise regulations
- Understand consumer preferences
- Skilled workforce
- Improved supply chain sustainability including minimising food waste & adopting circular economy principles
- Fail fast and reset, improved agility and transformative R&D that can be commercialised onshore.

Table 2 summarises those government policies and strategies launched to support industry and business growth. The work of v2food - and the establishment of the emerging plant and alternative protein sector - are helping to drive that agenda.

⁶³ Department of Agriculture, Water and Environment, 2020, Delivering Ag2030, <https://www.agriculture.gov.au/sites/default/files/documents/ag-2030.pdf>

⁶⁴ Department of Industry, Science, Energy & Resources, 2020, Food & Beverage National Manufacturing Priority Roadmap <https://www.industry.gov.au/sites/default/files/March%202021/document/food-and-beverage-national-manufacturing-priority-road-map.pdf>

Table 2: Overview of current Australian government innovation, food and agriculture policies and/or priorities

Delivering Ag2030	MMI outcomes	National Food & Beverage opportunities for manufacturing	CSIRO Food & Agribusiness Roadmap	National Agriculture Innovation Agenda	National Agricultural Workforce Strategy
<ul style="list-style-type: none"> • Trade & exports • Biosecurity • Stewardship • Supply Chains • Water & Infrastructure • Innovation & Research • Human Capital 	<ul style="list-style-type: none"> • Increased competitiveness • Manufacturing scale up • Resilient supply chains 	<ul style="list-style-type: none"> • Strong supply chain and collaboration • Implement Industry 4.0 opportunities to expand manufacturing • Growth of Australia's attractiveness in the global market for investment, and premium products • Reducing non-competitive costs, minimise regulations • Understand consumer preferences • Skilled workforce • Improved supply chain sustainability including minimising food waste & adopting circular economy principles • Fail fast and reset, improved agility and transformative R&D that can be commercialised onshore. 	<ul style="list-style-type: none"> • Products for health & wellness • Recovery of novel products from waste streams • Provenance for premium quality produce • Food safety & biosecurity • Market intelligence capabilities 	<ul style="list-style-type: none"> • Strengthening leadership across the system • Increasing funding and resources for cross cutting issues (collaboration) • Establishing world class innovation practices • Engaging our regions • Building a strong foundation for digital agriculture and agritech 	<ul style="list-style-type: none"> • Modernise agriculture's image • Attract and keep workers • Embrace innovation • Build skills for modern agriculture • Treat workers ethically

6. V2FOOD'S COMMITMENT TO SUSTAINABILITY (TOR 1e)

Key points

- **Food production is responsible for a quarter of the global GHG emissions**
- **Plant-based proteins have the lowest carbon footprint of all protein types**

Food production (including on-farm production, and post-farm processes such as processing, and distribution) is responsible for around 26% of the world's greenhouse gas emissions⁶⁵.

Protein-rich foods account for the bulk of our dietary emissions⁶⁶. While v2food acknowledges that greenhouse gas emissions from the Australian red meat industry have fallen by 57% since 2005⁶⁷, by any key measure (weight e.g. one kilogram of beef versus one kilogram of peas; protein content; or calories), plant-based foods have a lower carbon footprint than meat⁶⁸.

This was illustrated in a 2018 global meta-analysis of 38,000 farms producing 40 agricultural products – the largest such study to date – which demonstrated that plant-based protein sources have the lowest carbon footprint of all protein types⁶⁹.

- Producing 100 grams of protein from nuts (at the lowest end of the range) emits 0.26 kilograms of carbon dioxide equivalents (CO₂eq)
- Producing 100 grams of protein from soybeans emits 1.98 kgCO₂eq
- Producing 100 grams of protein from beef emits 25 kgCO₂eq.

Critically, this comprehensive study accounted for the significant variation in production practices across the world. As shown in [Figure 7](#), even in 'high-emitting' production scenarios, plant protein emissions (for beans and peas) are lower than those of meat.

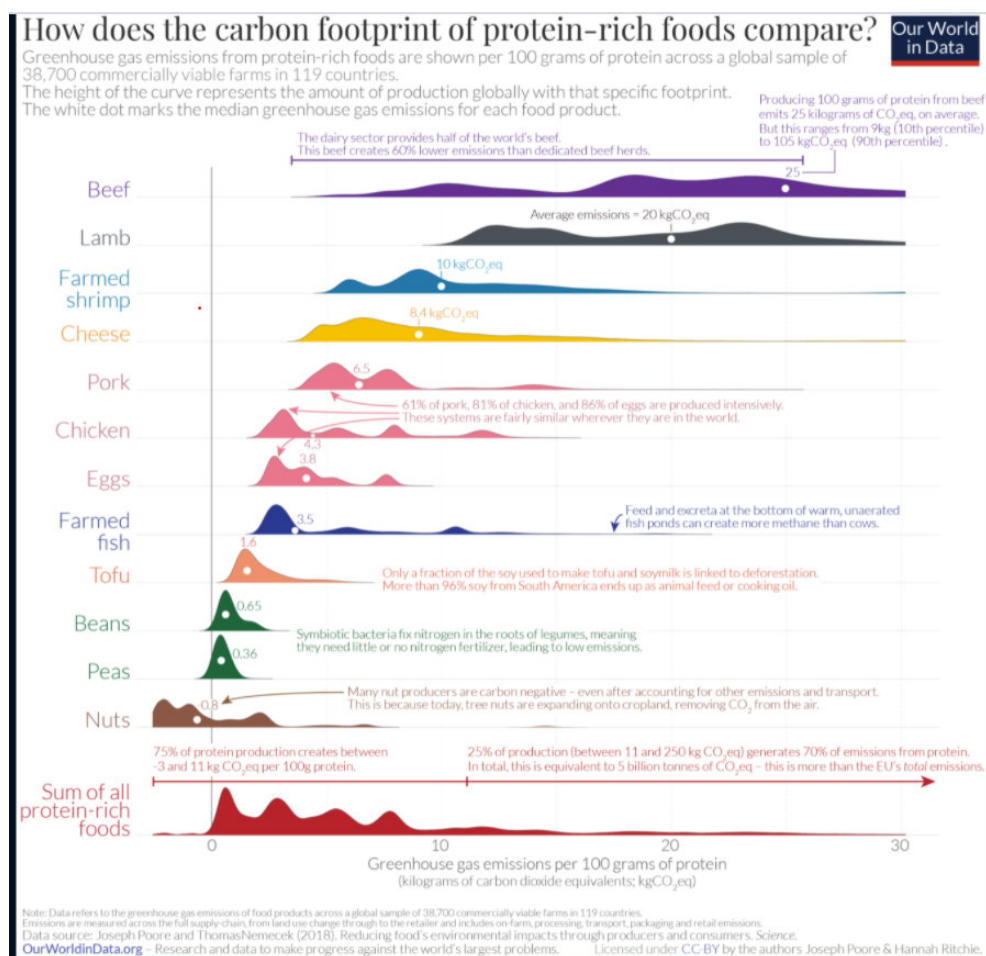
⁶⁵ Ritchie, 2019, Food production is responsible for one-quarter of the world's greenhouse gas emissions. <https://ourworldindata.org/food-ghg-emissions>

⁶⁶ Ritchie, 2020, Less meat is nearly always better than sustainable meat to reduce your carbon footprint, <https://ourworldindata.org/less-meat-or-sustainable-meat>

⁶⁷ MLA, 2020, State of the Industry Report <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/mla-state-of-industry-report-2020.pdf>

⁶⁸ Ritchie, 2020, Less meat is nearly always better than sustainable meat to reduce your carbon footprint <https://ourworldindata.org/less-meat-or-sustainable-meat>

⁶⁹ Poore & Nemecek, 2018, Reducing food's environmental impact through producers and consumers <https://science.sciencemag.org/content/360/6392/987>

Figure 7: Comparison of carbon footprint of various protein types

While well-managed grazing systems can sequester soil carbon in grasslands/ rangelands, Oxford University's Food Climate Research Network found that animal production and consumption, regardless of the farming system or animal type, is causing greenhouse gas release⁷⁰. The research noted that sequestration is highly variable, depending on critical variables like climate, terrain, soil quality, grass species composition, past land use and management, and the present management approach⁷¹.

Figure 8, below, shows that most food emissions come from on-farm production or land use change⁷². Post farmgate processes – processing, transport, retail and packaging – account for only a small share of emissions⁷³.

The data – across a range of reputable, independent sources like Oxford University – demonstrates that the biggest difference we can make to reduce the carbon footprint of our diets is to eat more plant-based sources of protein.

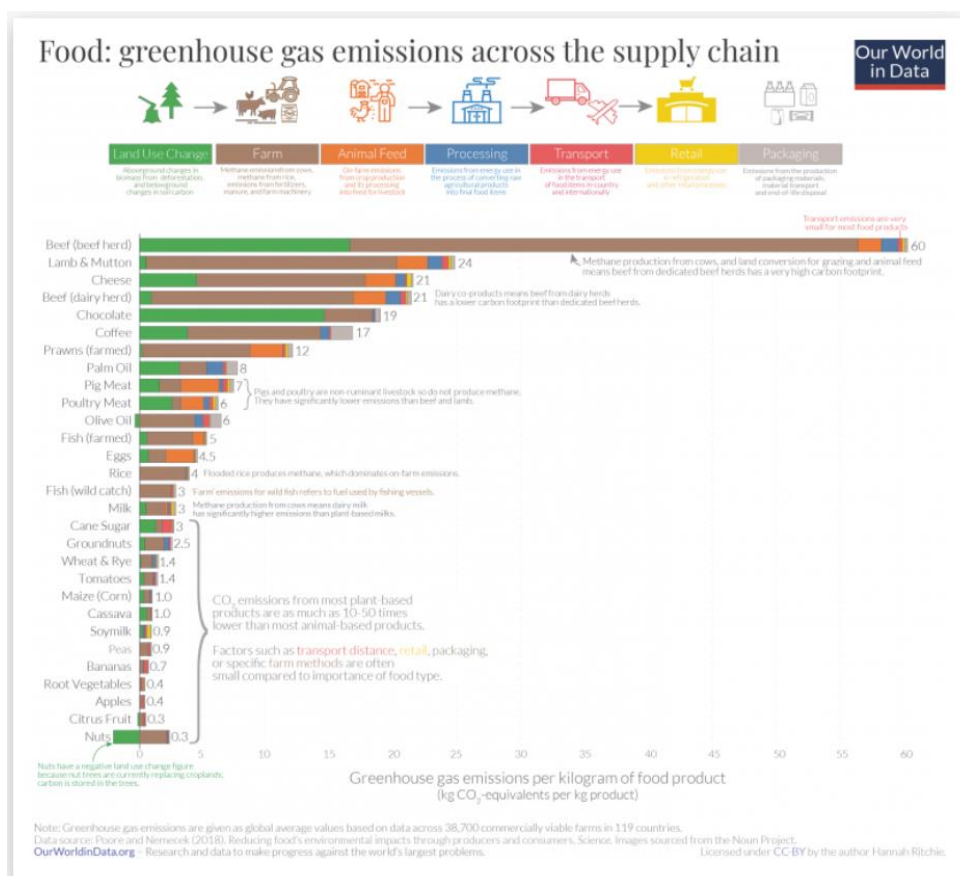
⁷⁰ Food Climate Research Network, 2017, 'Grazed and Confused?', https://www.oxfordmartin.ox.ac.uk/downloads/reports/fcrn_gnc_report.pdf

⁷¹ Food Climate Research Network, 2017, 'Grazed and Confused?', https://www.oxfordmartin.ox.ac.uk/downloads/reports/fcrn_gnc_report.pdf

⁷² Ritchie, 2020, 'You want to reduce the carbon footprint of your food? Focus on what you eat, not whether your food is local', <https://ourworldindata.org/food-choice-vs-eating-local>

⁷³ Ritchie, 2020, 'You want to reduce the carbon footprint of your food? Focus on what you eat, not whether your food is local', <https://ourworldindata.org/food-choice-vs-eating-local>

Figure 8: Greenhouse gas emissions of various protein foods, across the supply chain



b. v2food's commitment to carbon negative production

v2food was established to address the global sustainability challenge of feeding the world. We are purpose-driven to increase the production of plant protein – not because we are vegan – but because we recognise that, globally, we simply cannot meet the world's future protein needs through animal production alone.

Our solution is to work with Australian farmers to increase plant protein production – so more of the world's growing population can have this essential macro-nutrient on their dinner plates. Our proposed expansion, based on replacing imported SPC with locally produced SPC from Australia-grown soybeans, offers not only market development opportunities, but significant carbon sequestration opportunities for Australian farmers.

v2food is committed to carbon negative production and with the support of CSIRO, has developed a roadmap to achieve it – based on Soil Carbon Co seed inoculation technology and the use of our preferred variety, Hayman soy. Our analysis indicates that locally produced Hayman SPC could sequester 155,000t to 340,000t of carbon, with another 9,000t to 18,000t net reduction in carbon dioxide emitted per annum from logistics.

Our expansion plan would see us achieve our vision of a more resilient and prosperous soy industry; domestic manufacturing employment; and economic development opportunities for regional Australia. In addition, it also creates carbon sequestration opportunities for our farming systems that will help the government achieve its emissions reduction targets while supporting Australian business.

7. CONCLUSION

The rapid emergence of plant proteins has disrupted the global protein sector in recent years. As investor and consumer interest in plant proteins has grown, so too have the anecdotal criticisms of the industry on a range of fronts – from threatening the livelihoods of traditional livestock farmers, to snatching market share through deceptive labelling.

Our submission has drawn on objective, credible data (from both government and the red meat sector) to refute those claims and support our overall thesis that plant and alternative proteins have not – and are not forecast to – adversely impact the livestock or traditional protein sectors, but in fact support the growth and prosperity of both.

That shared prosperity is critical, because if we are to meet the global sustainability challenge of feeding 10 billion people by 2050 – on a declining natural resource base and in a changed, more volatile climate – then all protein categories will need to grow their current production base. It is outside the scope of any one category to solve the problem all on its own. We will need transformative solutions, both within existing protein production systems and from new, emerging industries that present a new approach.

For Australian grain producers, plant proteins are just that – an emerging industry with the potential to transform grain production from a commodity to a premium-priced, high value-added industry that rewards participants with greater financial returns and sustainability outcomes.

v2food has been working with the grains industry to build grower awareness and interest in our plan to grow the plant protein sector in Australia. Their enthusiastic response tells us we are on the right track.

As the development of the plant protein sector continues apace in international markets, inquiries such as this threaten to restrict the investment needed to accelerate that development in Australia. With two key criticisms of plant protein companies being their reliance on imported ingredients and imported products, a sad irony is that by fostering the perception of Australian agriculture sector as being 'hard to do business with', the foreign and venture capital investment that would support local supply partnerships and domestic manufacturing might never be realised.

For many years the agricultural sector and its government partners have been focused on improving the competitiveness, profitability, and sustainability of the agriculture sector. As a leader in the Australian plant protein sector, v2food looks forward to continuing that partnership into the future.

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