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Supermarket display of Alternative Protein Products

Image courtesy of J Lacy-Nichols 2020

The Australian Alternative Protein Industry

A report for the Future Food Hallmark Research Initiative

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1. Methodology

This report offers an initial mapping of the Australian Alternative Protein (AP)[[1]](#footnote-1) sector based on an analysis of publicly available documents, reports and websites. Company and retailer websites were searched for product details (see Appendix A and B for full datasets). All pages of company websites were searched and claims about the benefits of APs were downloaded and thematically analysed (see Appendix C for full dataset). Additionally, the websites of Food Frontier, meat industry associations and Australian regulators were searched to identify statements about alternative proteins. All websites and links were current as of April 2020.

1. Companies and products

As of February 2020, we identified 16 AP companies in Australia (see *Appendix A: Company details*). 13 companies use plant-based technologies, two (Heuros and Vow) are working on cell-cultured technology and one company (Qponics) is working on algae. Heuros is working on developing non-animal growth factors for the cell-cultured/biotech AP industry but has not yet launched any products. The other 13 AP companies have a range of different plant-based products that mainly imitate beef and chicken (Table 1). See also *Appendix B: Products and ingredients*.

Table : Plant-based Australian AP companies and products

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **Meat substitute** | | | | | | **Main protein ingredients** | | | | | |
| Beef | Chicken | Pork | Duck | Seafood | Misc | Wheat | Soy | Pea | Rice | Konjac | Mushroom |
| **Coco & Lucas Kitchen** | X | X |  |  |  |  | X |  |  |  |  |  |
| **Fable Food** |  |  |  |  |  | X |  | X |  |  |  | X |
| **Farm Foods Australia** | X |  |  |  |  |  |  |  | X |  |  |  |
| **Harvest Gourmet** | X |  |  |  |  |  |  | X |  |  |  |  |
| **Herb and Sons** | X | X | X |  |  |  |  | X | X |  |  |  |
| **Made With Plants** | X | X |  |  |  |  | X | X |  |  |  |  |
| **Next!** | X |  | X |  |  |  |  | X |  |  |  |  |
| **PlantAsia** |  |  | X | X | X |  | X |  |  |  | X |  |
| **Soulfresh** | X | X | X |  |  |  | X |  | X |  |  |  |
| **The Alternative Meat Co** | X |  |  |  |  |  | X | X | X |  |  |  |
| **Unreal Co.** | X | X |  |  |  |  |  | X | X | X |  |  |
| **v2food** | X |  |  |  |  |  |  | X |  |  |  |  |
| **Veef** | X |  |  |  |  |  |  | X |  |  |  |  |

These products differ in their technical complexity. Most are mince-based products, however there are also products that imitate cuts of meat and in one case (PlantAsia) whole prawns (Table 2).

Table : Categories of Australian AP products

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Category | Mince-based | | Simple cut | | Complex cut | |
| Beef | Mince (8)  Patty (11)  Sausage (4)  Meatballs (2)  Meatloaf (1) | Image result for The Alternative Mince | Sliced (1) | Image result for made with plants Stroganoff |  |  |
| Chicken | Mince (1)  Patty (2)  Nuggets (2)  Sausage (1)  Balls (1) | https://i2.wp.com/unrealco.com.au/wp-content/uploads/2018/08/chickn-nuggets-showcase.png?w=1080&ssl=1 | Sliced (9)  Breaded (3) | Image result for chick'n chunks next! |  |  |
| Pork | Sausage (2) | Image result for Chicken-Free Schnitzel | Sliced (1)  Pulled (1) | Image result for plant asia roast pork | Bacon (1) | Image result for chick'n chunks next! |
| Duck |  |  | Sliced (1) | Image result for plant asia roast pork |  |  |
| Seafood |  |  |  |  | Prawns (1) | Image result for plant asia roast pork |
| Misc. |  |  | Braised (1) |  |  |  |

1. Claimed benefits

AP companies made a range of claims about the benefits of their products (Table 3), including the problems with conventional meat production as well as the benefits of AP products for: the environment, nutrition, animal welfare and food security. In addition to highlighting the ways in which their products were better than conventional meat, AP companies also reassured consumers that their products tasted like meat. In these claims, companies discuss their products in relation to conventional meat products, presenting them as simultaneously better than and similar to meat.

Companies also discussed the growing demand for their products and the implied economic benefits of supporting Australian made products. Some companies explicitly or implicitly acknowledged consumer concerns about processing, highlighting the various ways that their products were natural. Finally, some companies discussed their visions for how the AP industry could disrupt the current status quo. See *Appendix C: Claimed benefits of Alternative Proteins (companies)* for the full dataset*.*

Few companies provided evidence or data to support their claims, with the exception of v2food and The Alternative Meat Co. v2food referred to the Eat Lancet Report (1) and an unspecified publication from Food Frontier in its explanation of the issues with current meat production. The Alternative Meat Co referenced the websites of several animal rights and environmental organisations (Vegan Australia (2), PETA (3), LiveKindly (4) and EarthSave (5)) as well as a Roy Morgan article about the rise of vegetarianism in Australia (6) as the sources for its statistics on the environmental impact of meat production and consumption.

Table : Claimed Benefits of AP (companies)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Themes** | **Conventional**  **meat** | **Environment** | **Nutrition** | **Animal**  **welfare** | **Food**  **security** | **Taste** | **Economic** | **Natural** | **Disruption** |
| **Coco & Lucas Kitchen** | X |  | X# | X |  |  | X | X% | X |
| **Fable Food** | X | X | X | X |  | X |  | X | X |
| **Farm Foods Australia** |  | X |  | X |  | X | X$ | X | X |
| **Harvest Gourmet** |  |  | X |  |  | X | X | X | X |
| **Herb and Sons** |  |  | X# |  |  |  | X |  |  |
| **Heuros** |  |  |  |  |  |  | X | X |  |
| **Made With Plants** |  | X\* | X | X |  | X | X | X | X |
| **Next!** |  |  | X |  |  | X |  |  |  |
| **PlantAsia** |  | X\* | X | X |  | X | X | X | X |
| **Qponics** | X | X | X |  | X |  | X |  |  |
| **Soulfresh** |  | X | X | X |  | X | X | X |  |
| **The Alternative Meat Co** | X | X | X | X |  | X | X |  | X |
| **Unreal Co.** |  | X | X | X |  |  | X | X | X |
| **v2food** | X | X | X |  | X | X |  | X | X |
| **Veef** |  |  |  | X |  | X | X | X |  |
| **Vow** | X | X | X | X | X | X | X | X | X |

\* Only discuss sustainable packaging

# Only display the Health Star Rating logo on the front-of-pack label

% The claim “All our ingredients are real foods” likely refers to the company’s meat products, not AP products

$ The claim “we have strong agricultural roots and are proud of our Australian heritage” likely refers to the company’s meat products, not AP products

* 1. Conventional Meat

Six companies discussed the issues with conventional meat production and consumption. Most highlighted the environmental issues associated with current meat production, including: factory farming, intensive farming, deforestation, land degradation, biodiversity loss, habitat destruction, greenhouse gas emissions, water use and land use. Both v2food and Qponics noted that increasing population growth and demand for protein presented risks for global food security or protein deficiencies. In addition to the environmental issues with conventional meat production, Fable Food and Vow implied a degree of irresponsibility and selfishness in their criticisms, referring to the “reckless pursuit of profit” (Fable Food) and “bend[ing] nature to our hungry will” (Vow).

* 1. Environmental Claims

Eight companies made environmental claims about their products, however most claims were generic: “sustainable…minimal environmental impact…feel-good ingredients” (Fable Food), “planet-friendly…treading lightly upon the planet” (Soulfresh), “environmentally friendly” (The Alternative Meat Co), “sustainable from the beginning” (Vow), “compassion towards…the environment” (Unreal Co.) and “more environmentally sustainable” (Farm Foods Australia).

v2food’s claims revolved around the protein ingredient (legumes) in its products: “When legumes are grown, they take carbon dioxide and nitrogen out of the atmosphere and can fix it into the soil. By consuming v2food products in place of animal meat products you are reducing your carbon footprint with every bite.” In addition to “making a significant difference” to climate change, the company also noted the benefits of “revitalised soil” and “sustainable land use.”

Qponics’ claims also revolved around a specific protein ingredient (algae by-products), however its claims positioned algae as not only superior to animal protein, but also to plant proteins made from “terrestrial crops.” The company noted that “marine algae do not require freshwater or existing arable land to be commercially farmed,” and they “grow faster and offer significantly higher annual protein yields per hectare than terrestrial crops such as soybean, pulse legumes, and wheat.”

* 1. Nutrition claims

11 companies made nutrition claims about their products. These included specific nutrient content claims:

* [good source of] protein (Harvest Gourmet, Made With Plants, PlantAsia, Soulfresh)
* [good source of] fibre (Harvest Gourmet, Made With Plants, PlantAsia)
* [good source of] iron (Soulfresh, v2food)
* Cholesterol free (Made With Plants, Next!, PlantAsia, Soulfresh, v2food)
* Low in fats/saturated fats (Made With Plants, Next!, Soulfresh, v2food)

Fable Food and Qponics made specific health claims about the benefits of mushrooms (“the ancient magic of the mushroom…incredible nutrition, their ability to cure disease, restore gut flora, and open minds… used in Chinese medicine for 1000’s of years”) and algae (“non-allergenic plant-based protein with balanced amino acid profiles…[contains] polyphenols…which can impart health benefits to the consumer”).

Some companies emphasised the nutritional equivalence of animal and plant proteins, or even the improved nutrient profiles: “[our] products have the same protein and iron levels to their meat equivalents, so you can enjoy the same benefits…It has all the taste, protein and iron of its meat equivalents with none of the bad stuff – like cholesterol” (Soulfresh), “we've developed v2 to be as nutritious as meat…we’ve been able to mimic the great qualities of meat - namely its great taste and high protein, iron and B vitamin content - while slashing cholesterol and adding in the goodness of dietary fibre” (v2food), “seitan can contain more protein per gram than animal-based meats” (Made With Plants). Vow (a cell-based company). Vow (using cell-based technology) claimed that it could “blend multiple cell types to create better…nutritional profiles than any animal could.”

* 1. Animal welfare claims

10 companies referred to animal welfare, however these claims were often brief and generic: “promoting animal welfare” (The Alternative Meat Co) “cruelty free” (Veef), “animal-free” (Soulfresh), “compassion towards animals” (Unreal Co.), “A tasty story, with animals as characters, not dishes” (Fable Food) or the “impact of factory farming on…animals” (Coco & Lucas Kitchen). Only two companies referred to their products as “vegan” (Soulfresh) or “vegan friendly…certified by Vegan Australia” (Farm Foods Australia). Both Made With Plants and PlantAsia explicitly supported veganism, and Unreal Co. noted that its company was “staffed by a team of passionate vegans.” The Alternative Meat Co made the only specific claim about the potential benefits of alternative proteins for animal welfare: “1 single person could save 200 animals per year just by living on a plant-based diet,” citing an article from PETA (REF).

* 1. Food security claims

Only three companies discussed food insecurity or protein shortages as a justification for alternative proteins. v2food referred to the “demands of 10 billion people” and the need to “feed a rapidly growing population,” while Qponics noted the potential for an “uncontrollable global protein deficiency before 2050.” v2food presented “plant-based foods” as the solution to “feed[ing] 10 billion people with the resources of one earth.” Similarly, Vow envisioned a “post-scarcity” food system that “requires no compromise to provide everyone on earth with delicious, highly nutritious food.” Notably, these companies focused on increasing the availability of protein, not the question of access or affordability, which are equally if not more important issues when addressing food insecurity.

* 1. Taste claims

11 companies made claims about the taste of their products. The most common theme was the similarity to meat and the idea that “you won't believe it isn't meat!” (Soulfresh), “Chick’n Chunks will have you fooled!” (Next!), “Formulated to look, cook and taste like real meat” (The Alternative Meat Co) and “v2 is designed to look, cook and taste like meat - not the legumes we get the protein from” (v2food). They also spoke about the similarities in how they could be cooked or prepared. “Whether you throw it on to your BBQ or into the pan, it sizzles and looks like the real deal. It sears beautifully outside, remaining juicy and tender inside” (Harvest Gourmet), “cooks, sizzles, and tastes like fresh rasher bacon” (Next!) and “Eaty even looks the part, sizzling proudly on the BBQ” (Soulfresh). Some companies explained the role of specific ingredients in imitating the taste and texture of meat: “Mushrooms have the same natural umami flavours that help make meat so appealing” (Fable), “The canola and chopped coconut oil tenderizes the burger for a rich taste” (Harvest Gourmet), “we've discovered the specific amino-acids that are responsible for that awesome meaty taste” (v2food). Harvest Gourmet also discussed the use of specific ingredients to achieve a similar appearance to meat “the canola and chopped coconut oil tenderizes the burger for a rich taste and helps give the raw burger the realistic marbled fat appearance of raw beef mince.” While most companies tried to position their products as familiar to consumers in taste and eating experience, Vow took a different approach, claiming instead that their “repertoire of ingredients” could be used to create “exciting new exotic meats or blend multiple cell types to create better flavours, textures or nutritional profiles than any animal could.”

* 1. Economic claims

12 companies discussed the economic benefits of AP products for both the Australian economy as well as their own company. Companies promoted their products as “Australian owned” (Veef) and “Australian made” (The Alternative Meat Co, Herb and Sons), with Veef claiming that “you’re supporting a small Australian business with a big heart.” Some companies also pointed to locally sourced ingredients: “Locally sourced from our Australian farmers and growers” (Coco & Lucas Kitchen) and “AUSTRALIAN NATIVES: A new kind of cultivated meat company” (Vow). Companies also discussed the market opportunities for AP products: “Australia is the third-fastest growing vegan market in the world” (The Alternative Meat Co), “Plant-based alternatives to animal protein is one of the fastest growing segments of the food market” (Qponics), “the demand for meat alternatives is growing every day” (Harvest Gourmet), “The fact that major retailers such as Woolworths are making space for plant-based proteins – in the meat section, no less – signals a fundamental change to the way Aussies think about meat…We know the demand for tasty plant-protein will continue to grow” (Made With Plants) and “plant-based proteins are also becoming a rapid area of growth and popularity” (Plant

Asia). Other companies alluded to their commercial ambitions: “We aim to become leaders in the plant- based food industry” (Unreal Co.), “We are developing this technology to produce cultivated meat on a commercial scale” (Heuros). Qponics explained its “co-production” business model where it produced a high-value omega-3 product “to ensure farm profitability” and a low-value “protein rich by-product.” This alludes to some of the potential economic challenges that ingredient suppliers might face in supplying the AP industry with plant proteins.

* 1. Natural claims

12 companies discussed the “naturalness” of their products, with the most common claim being non-GMO (six companies), as well as the absence of artificial additives (e.g. colours, flavours, preservatives, or MSG) (Coco & Lucas Kitchen, Harvest Gourmet, Soulfresh, v2food and Veef). Some companies presented their products as minimally processed: “lovingly handmade” (Coco & Lucas Kitchen) or “as minimally processed as possible…shiitake mushrooms make up 2/3 of the ingredient list” (Fable Food). Heuros specifically identified the technologies it did not use, for example foetal bovie serum, genetic engineering and pluripotent stem cells. Others sought to downplay the technology or processing involved in the creation of alternative proteins, for example Made With Plants claimed to have “gathered the best ingredients that nature has to offer, then applied a little innovation.” Similarly, Vow simplified the process of “cellular agriculture” to four steps, including step three: “we encourage those cells to grow and differentiate in exactly the same way they would naturally.” v2food took a slightly different approach, acknowledging that the term “processed” is often “synonymous with products that have had all the goodness stripped from them to make something at low-cost that lasts a ridiculously long time” but arguing that they do “the minimum amount of processing we can to enhance the nutrition and taste of the meat we make, and nothing more.” In effect, the company sought to justify its processing and differentiate it from other forms of processing intended, for example, to increase shelf life rather than nutrition.

* 1. Disruption claims

10 AP companies discussed the various ways that their products could disrupt the status quo, often using the language of “revolutionising” the meat category (Farm Foods Australia, Harvest Gourmet, v2food) or in the case of Vow “literally inventing new food.” Some spoke of the AP industry in terms of a journey or adventure: “join us on our journey, and discover” (Harvest Gourmet), “on a journey” (Fable), “An adventure to scour the earth like a cellular-level Indiana Jones, prospecting for earth for unique textures, flavours and sensations, without the harm” (Vow).

Companies differed in how they explained the mechanisms of change. Some companies focused on the power of individuals to change their diet: “I believe it’s within everyone’s power to look for better ways of doing things. A meat-free meal once or twice a week can have a tremendous impact” (Coco & Lucas Kitchen), “inspire customers to make the right changes for a healthier life” (Unreal Co.) and “easy access to tasty vegan food can empower all of us to make more sustainable choices every day…Every time you choose to eat a vegan meal, you’re benefiting the planet and our animal friends, and we believe that means everyone can make a difference” (Made With Plants, PlantAsia). Alongside these claims about consumer-led change was the caveat that these changes would be easy and convenient: “Make your own plant-based meats in your very own kitchen” (Unreal Co.), “easy access to tasty vegan food” (Made With Plants, PlantAsia), “[make] plant-based eating more convenient and enjoyable” (v2food) and “consumers should have more variety in their dietary proteins without having to compromise” (Farm Foods Australia). The implicit mechanism of change is consumer sovereignty, where “change occurs if enough individual people change their behavior” (7).

In addition to dietary changes, some companies also discussed changes in the marketplace, for example the availability of APs in mainstream retailers and restaurants: “The fact that major retailers such as Woolworths are making space for plant-based proteins – in the meat section, no less – signals a fundamental change to the way Aussies think about meat” (Made With Plants). Here too, some companies noted that AP products were not designed to replace meat, but to offer an alternative: “In the not-too-distant future, we believe that a plant-based alternative for every product will be readily available at your local grocery store” (Made With Plants) and “This is not about getting rid of meat. We understand many Australian farmers are already using sustainable farming techniques to produce high quality animal meat in a way that is environmentally sustainable. We are about adding another option to the mix” (v2food).

Again, Vow offered a more radical vision of moving away from agriculture entirely: “Our vision is to leapfrog traditional agriculture completely…A ‘Digital’ approach to food will set us free from the physical constraints of agriculture… In our unconstrained future there are no limits to the thousands of different species we can draw upon” (Vow).

1. Support for the AP industry

Several factors have created a supportive environment for the emergence and growth of an AP industry in Australia including investments from domestic and foreign sources, partnerships with research groups and advocacy and lobbying on behalf of the industry.

* 1. Financial investments and partnerships

The Australian AP industry grew in 2019, with the launch of three new companies and several new plant-based products in restaurants and retailers, as well as received investment from both domestic and foreign sources (Figure 1).

Figure : 2019 AP company and product launches

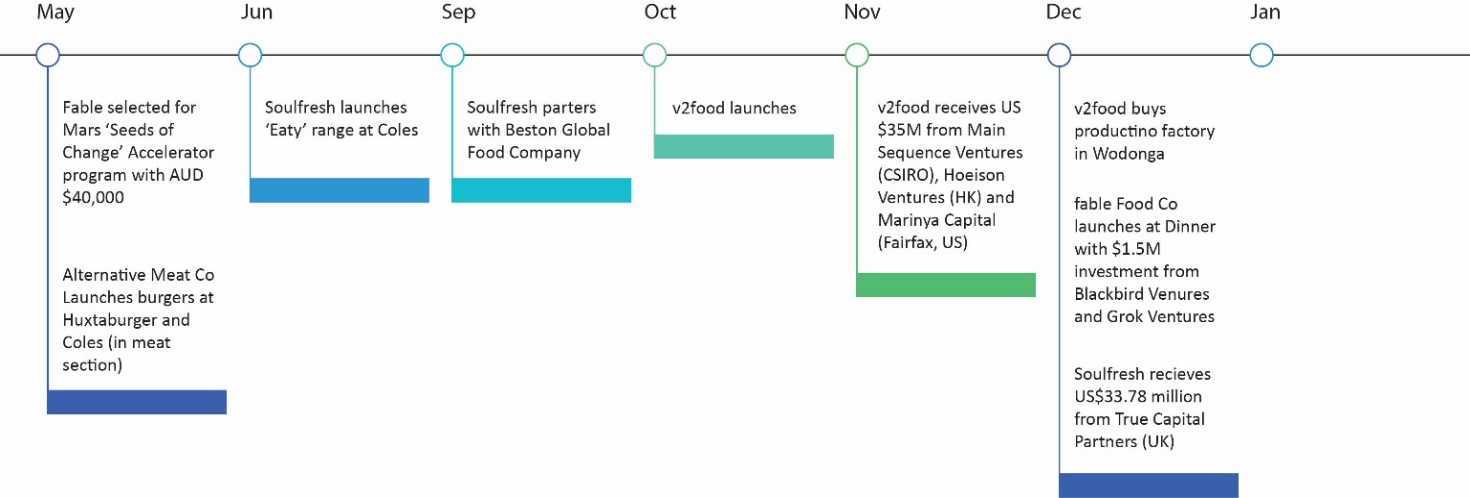


Table : Australian research groups working on AP

|  |  |
| --- | --- |
| Organisation | Project |
| CSIRO | CSIRO partnered to start v2food; R&D to create pea protein; LCA (8) |
| University of Queensland | Qponics (an algae farming company) is an affiliate company with the Algae Biotechnology Group at the School of Agriculture and Food Sciences at UQ (co-founder and Chief Scientific Officer Prof Peer Schenk is the lab head, the chief technical officer is a visiting scholar at the lab. Qponics announced in September that it would supply the AP ingredient industry with its high protein bioproducts (9, 10). |
| University of Queensland | UQ researchers have partnered with Motif FoodWorks (US) for in-vitro analysis of oral processing to improve the texture of APs with an explicitly commercial focus (11) |
| University of Technology Sydney | University of Technology Sydney researchers have founded Vow Meats, working on lab-grown kangaroo meat (12). They make the claim that lab-grown meat can democratise choice: “We’re interested in exploring and bioprospecting a whole vast array of different animal sources, to understand what are the best flavours, the best nutrition profiles, and the best food experiences that are out there” (9) |
| University of Melbourne | [Future Food Hallmark Research Initiative](https://research.unimelb.edu.au/hallmark-initiatives/home/future-food#about) |

* 1. Advocacy

The loudest supporting voice is the think tank Food Frontier, who advises AP companies and investors as well as governments. Food Frontier discusses the environmental and health cases for APs but focuses more on the business case for APs (including their integration into the existing Australian food industry). Food Frontier has published several reports analysing the economic potential for an Australian AP industry (13-16). Three key themes are:

* **Opportunities for export**: Food Frontier notes that both Australia and New Zealand are “well-placed” to export to Asia because of their free trade agreements (17). The organisation used this as part of its engagement strategy with US-based Memphis Meats (cell-culture AP) to persuade them to come to Australia (13). MLA has also noted the export focus for APs and refers to this as a potential avenue for peaceful cohabitation of the two industries (AP and conventional meat). AP companies (e.g. v2foods (18)) also refer to opportunities for export, however this is often couched in the terms of “feeding the world” (19).
* **Jobs and growth**: “A diversified protein sector offers Australia new industrial opportunities and job creation across a variety of fields” (15)
* **Cooperative opportunities with “conventional” agriculture**: the Food Frontier reports highlight opportunities for partnerships with the domestic horticultural/crop sector that produces AP ingredients (e.g. legumes and grains), also with biotechnology, digital ag (14, 15).

1. Critics of Alternative Proteins

The Australian meat industry (especially the livestock and red meat industry) have had a mixed response thus far. Meat and Livestock Australia (MLA) and the Red Meat Advisory Council (RMAC) speak about the risks and opportunities that a growing AP industry presents to the Australian meat and livestock industry.

Alternative proteins came onto MLA’s agenda in 2018, featuring in their *State of the Industry* report, which questioned whether rising demand for meat in the developing world provided challenges for the AP industry (20). However, in its 2019 report the organisation had shifted its position, discussing the potential for APs to address global food security, noting the “demand for protein is growing significantly and traditional production will need to be supplemented by non-animal based sources” (21).

MLA and RCMA noted that cell-cultured APs were not currently a threat, and there was an opportunity to differentiate with claims about “naturalness”(21, 22). MLA spokesperson noted “If you look at research, it (non-meat “meat”) doesn’t appeal to most people (and) it goes against the trends we are observing around the world towards natural, whole foods. This is heavily processed food”(22). Similarly, MLA noted that lab meat “asks consumers to accept not a substitute, but an artificial replication”(23). MLA argued that standards of identity (e.g. use of the term “beef” or “meat” to describe APs) were a more “pressing threat” posed by plant-based APs (20, 21). This suggests that the debate over the relative benefits of APs versus animal meats may play out on product labels and in marketing campaigns.

MLA noted that it was important that industry controls the messages and reporting on sustainability (for example via its [Good Meat](https://www.goodmeat.com.au/) website) to ensure that they were not “imposed” on the industry (24). An interesting development to watch is the ongoing review and proposed restructuring/unifying of the existing red meat industry associations (25). The Green and White papers both noted that several issues (including APs) have challenged the industry’s “clean and green” credentials and social license to operate (25, 26). One of the Green Paper’s proposals was to rebrand as Food Protein Australia (26). Interesting, AP ingredient supplier Qponics (producing algae by-products) questions the sustainability of some of the supply chains underpinning plant-based proteins, asking whether “producing more and more soybeans for sustainable meat is really going to solve the sustainability problem” (9).

More direct opposition to the AP industry has come from associations representing farmers and ranchers, for instance the Cattle Council of Australia (23), Australian Farmers (27), and Australian Dairy Farmers, who have an petition to Ministers McKenzie and Colbeck about [Truth in Food Labelling](https://farmers.org.au/campaign/reclaimmilk/). The campaign argues that “we support choice, we just want honest labelling” (27).

In addition to push back from the meat and livestock sectors, APs also face criticism from nutritionists who claim that APs (especially plant-based burgers) are highly processed foods (28-30). This line of argument is also promoted by right-wing think tank Center for Consumer Freedom in the US (31), which has a developed a website ([CleanFoodFacts.com](https://wellness.consumerfreedom.com/ad-does-fake-meat-need-a-cancer-warning/)) to promote this message. Thus far, this debate has primarily played out in the United States.

1. Governance issues

FIAL’s 2019 report noted that governance could drive or constrain adoption of APs, such as through dietary guidelines, regulation of biotechnology or pricing carbon emissions, water, and other resources (32). The report proposed actions for the Australian government to explicitly enable the AP industry: R&D funding, grants and tax incentives, as well as ensuring that standards of identity “ensure a level playing field for new food products and market entrants” (32).

Thus far, most of the debate in Australia has focused on labelling, specifically the use of milk, meat, chicken or other terms to refer to APs. In 2018, the Ministerial Forum on Food Regulation considered an item on “misleading descriptions for food” (including dairy and meat) and requested that the Food Regulation Standing Committee develop an options paper. Food Frontier presented to the Forum in 2019. The Forum’s most recent communique (November 2019), noted plans to develop a policy guideline to “adequately differentiate ‘synthetic’ animal products from their natural or conventional equivalents”(33).

In September 2019, FSANZ added a section on “[Cell-based meat](https://www.foodstandards.gov.au/consumer/generalissues/Pages/Cell-based-meat.aspx)” under food issues. This discusses possible standards needed for cell-based meats and notes that while Australia does not yet have permissions or requirements, the US, EU, Israel, China, Japan, the Netherlands and Singapore are in the process of developing regulatory frameworks.

1. References

1. EAT-Lancet Commission. Summary report of the EAT-Lancet Commission. Stockholm, Sweden; 2019.

2. Vegan Australia. Impact of a vegan agricultural system on land usen.d. 8 April 2020. Available from: <https://www.veganaustralia.org.au/impact_of_a_vegan_agricultural_system_on_land_use>.

3. PETA Australia. How Many Animals Will You Save by Going Vegan in 2016?2016 8 April 2020. Available from: <https://www.peta.org.au/news/how-many-animals-saved-vegan-2016/>.

4. Murray-Ragg N. Australia is the 3rd Fastest Growing Vegan Market in the World. LiveKindly [Internet]. 2018 8 April 2020. Available from: <https://www.livekindly.co/australia-vegan-market-growth/>.

5. Robbins J. 2,500 Gallons All Wet? Earth Save [Internet]. n.d. 8 April 2020. Available from: <http://www.earthsave.org/environment/water.htm>.

6. Roy Morgan. The slow but steady rise of vegetarianism in Australia 2016 8 April 2020. Available from: <http://www.roymorgan.com/findings/vegetarianisms-slow-but-steady-rise-in-australia-201608151105>.

7. Fuchs D, Di Giulio A, Glaab K, Lorek S, Maniates M, Princen T, et al. Power: the missing element in sustainable consumption and absolute reductions research and action. Journal of Cleaner Production. 2016;132:298-307.

8. Cole M, Augustin MA. What’s made of legumes but sizzles on the barbie like beef? Australia’s new meat alternative. CSIROscope [Internet]. 2019 23 January 2020. Available from: <https://blog.csiro.au/australias-new-meat-alternative/>.

9. Palmer-Derrien S. “A drought-proof farm”: This algae farm is leading the charge in Australia’s plant-based protein revolution. Smart Company [Internet]. 2019 7 Jan 2020. Available from: <https://www.smartcompany.com.au/startupsmart/analysis/qponics-algae-plant-based-protein/>.

10. Qponics. Algae farming company targets billion dollar alternative meat market2019 7 April 2020. Available from: <https://cloud.hitservices.com.au/index.php/s/8zgpoLQ0PRpJ8DD>.

11. Motif. Motif FoodWorks and The University of Queensland Announce Partnership to Improve Texture in Plant-Based Food2019 7 Jan 2020. Available from: <http://www.madewithmotif.com/2019/12/10/motif-foodworks-and-the-university-of-queensland-announce-partnership-to-improve-texture-in-plant-based-food.html>.

12. Webber J. You May Soon Be Able to Eat Cruelty-Free Kangaroo Meat. LiveKindly [Internet]. 2019 7 April 2020. Available from: <https://www.livekindly.co/you-may-soon-be-able-eat-cruelty-free-kangaroo-meat/>.

13. Food Frontier. Year in Review2018 14 January 2019. Available from: <https://www.foodfrontier.org/wp-content/uploads/2018/12/Year-in-Review-2018-Food-Frontier.pdf>.

14. Food Frontier. Meat The Alternative: Australia’s $3 Billion Opportunity2019 14 January 2020. Available from: <https://www.foodfrontier.org/wp-content/uploads/2019/09/Meat_the_Alternative_FoodFrontier.pdf>.

15. Food Frontier. Meat Re-imagined: The Global Emergence of Alternative Proteins2019 14 January 2019. Available from: <https://www.foodfrontier.org/wp-content/uploads/2019/03/MeatReimagined_FoodFrontier.pdf>.

16. Food Frontier. Hungry for Plant-Based: Australian Consumer Insights2019 14 January 2020. Available from: <https://www.foodfrontier.org/wp-content/uploads/2019/10/Hungry-For-Plant-Based-Australian-Consumer-Insights-Oct-2019.pdf>.

17. Food Frontier. Australia & New Zealand2020 7 Jan 2020. Available from: <https://www.foodfrontier.org/why-au-nz/>.

18. Masige S. A new Aussie plant-based meat startup has launched, backed by the CSIRO and the founder of Hungry Jack's. Business Insider Australia [Internet]. 2019 7 Jan 2020. Available from: <https://www.businessinsider.com.au/v2food-australia-launch-2019-10>.

19. Brookes J. Australian Plant-Based Meat Startup v2food Raises $35m in Series A. Which-50 [Internet]. 2019 7 Jan 2020. Available from: <https://which-50.com/australian-plant-based-meat-startup-v2food-raises-35m-in-series-a/>.

20. Meat & Livestock Australia. State of the Industry Report: The Australian Red Meat and Livestock Industry2018 14 January 2020. Available from: <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/soti2018.pdf>.

21. Meat & Livestock Australia. State of the Industry Report: The Australian Red Meat and Livestock Industry2019 14 January 2020. Available from: <https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/mla-state-of-industry-report-2019.pdf>.

22. Lethlean J. Burger Bunfight: can plant-based ‘meat’ cut the mustard? The Australian [Internet]. 2020 7 Jan 2020. Available from: <https://www.theaustralian.com.au/inquirer/burger-bunfight-can-plantbased-meat-cut-the-mustard/news-story/f5e42d3cd2edc09c26d9fb7c095db64c>

23. Relph Z. Meat growers back beefed-up reputation to overcome plant-based alternatives. Countryman [Internet]. 2019 7 Jan 2020. Available from: <https://www.countryman.com.au/countryman/news/meat-growers-back-beefed-up-reputation-to-overcome-plant-based-alternatives-ng-b881231151z>.

24. Sim T. Red meat industry needs to sharpen response to changing consumer preferences. Beef Central [Internet]. 2019 14 January 2020. Available from: <https://www.beefcentral.com/news/red-meat-industry-needs-to-sharpen-response-to-changing-consumer-preferences/>.

25. Red Meat Advisory Council. A better red meat future: a white paper for the Red Meat Advisory Council2019 15 January 2020. Available from: <https://rmac.com.au/wp-content/uploads/2019/07/FINAL_Fact-Sheet.pdf>.

26. Red Meat Advisory Council. Towards a better red meat future: a green paper for the red meat MOU2019 15 January 2020. Available from: <https://rmac.com.au/mou2-2/read-green-paper/>.

27. Martinello A. Inside the fake meat and honest labelling debate. Australian Farmer [Internet]. 2019 15 January 2020. Available from: <https://farmers.org.au/blog/inside-the-fake-meat-and-honest-labelling-debate/>.

28. Bharti B. Vegan Beyond Meat burgers are just ultra-processed patties that can be bad for our health. National Post [Internet]. 2019 20 May 2020. Available from: <https://nationalpost.com/news/canada/beyond-meat-health-vegan-burger-plant-based>.

29. Terzon E. Vegan and vegetarian meat substitutes could pose health risks, researchers warn. ABC News [Internet]. 2019 20 May 2020. Available from: <https://www.abc.net.au/news/2019-09-11/researchers-warn-of-health-dangers-of-fake-meats/11498310>.

30. Rosewarne E, Farrand C. Salt levels in meat alternatives in Australia (2010-2019). 2019 20 May 2020.

31. Centrer For Consumer Freedom. 5 Chemicals Lurking in Plant-Based Meats 2019 20 May 2020. Available from: <https://www.consumerfreedom.com/2019/05/5-chemicals-lurking-in-plant-based-meats/>.

32. FIAL. Protein market: size of the prize analysis for Australia2019 14 January 2020. Available from: <https://fial.com.au/Attachment?Action=Download&Attachment_id=200>.

33. Food Regulation Secretariat. Australia and New Zealand Ministerial Forum on Food Regulation Communiqué 15 November 20192019 17 January. Available from: <https://foodregulation.gov.au/internet/fr/publishing.nsf/Content/forum-communique-2019-November>.

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1. For consistency, we refer to the constellation of products/industry as ‘alternative proteins’ recognising that there are many terms. [↑](#footnote-ref-1)