



Australia's National
Science Agency

Inquiry into the Definitions of meat and other animal products

Senate Standing Committees on Rural
and Regional Affairs and Transport

CSIRO Submission 21/761

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Introduction

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) welcomes the opportunity to provide input to the Senate Standing Committee on Rural and Regional Affairs and Transport inquiry into Definitions of meat and other animal products.

CSIRO has a long history of research and development in the area of agriculture, livestock, human and animal health and meat and meat alternatives. For over 30 years CSIRO provided technical information for the Australian meat and livestock industries. This included reports, newsletters and workshop proceedings via CSIRO Food and Nutritional Sciences and Meat Industry Services – an industry initiative supported in part by the Australian Meat Processor Corporation and Meat & Livestock Australia. Meat Industry Services purpose was to support world-class industry work practices in Australia's red meat industry and help the industry compete more effectively in world markets.

More recently, CSIRO has collaborated with industry and Government to form the Future Protein Mission. The Future Protein Mission is now helping Australia capture high-growth global protein markets. An overview of the Future Protein Mission is included on the next page.

Future Protein Mission

Our goal

Protein is a building block of life and we'll need to grow more protein, more sustainably, to feed the world.

To leverage increasing global demand for high quality protein and create new Australian protein products and ingredients that earn an additional \$10b in revenue by 2027.

Opportunity

The global population will reach 9.7 billion by 2050, fuelling the demand for protein.

As a major producer and exporter of protein, we can capitalise on this demand by capturing high value, high margin export market opportunities, in the process building our sovereign manufacturing capability and creating new jobs. Australia's food industry is well placed to develop novel, differentiated protein products that meet the requirements and changing dietary patterns of the modern health- and welfare-conscious consumer.

Potential impact

Capturing high-growth global protein markets

- New jobs in agribusiness, food processing and advanced biomanufacturing; new industries for regional Australia
- Development of sovereign manufacturing capability to deliver food security
- Access to growing export markets
- Sustainable use of natural resources; a decreased environmental footprint; and reduction in food and agricultural waste
- Optimised nutrition to meet the needs of the future consumer.

Proposed focus

What we will achieve

- Plant protein for new markets: with an initial focus on plant crops, the mission will take a whole of value chain approach and support a fundamental shift from commodity to high value protein products.
- Sustainable animal protein production: the mission will protect and grow Australia's traditional high value protein industries of livestock and aquaculture. With sustainability as a driver, we will deliver novel healthy feeds and premium protein foods for export markets.
- Novel protein production systems: the mission will develop new protein-based business recovery opportunities and build resilience in regional Australia. From microbes such as yeast through to insects that can create wealth from waste, we will transform low or no value side-streams through advanced biomanufacturing.

Based on CSIRO expertise we have prepared responses to the Terms of Reference for the Committee's use and welcome an opportunity to discuss further or clarify any questions you might have.

CSIRO Response to the Terms of Reference

CSIRO provides the following responses to the management by the Department of Agriculture, Water and the Environment of the legislative and regulatory framework underpinning the compulsory levy investment into meat category brands as declared through the *Australian Meat and Live-stock Industry Act 1997*.

1a. The potential impairment of Australian meat category brand investment from the appropriation of product labelling by manufactured plant-based or synthetic protein brands, including:

- i. the use of manufactured plant-based or synthetic protein descriptors containing reference to animal flesh or products made predominately from animal flesh, including but not limited to “meat”, “beef”, “lamb”, and “goat”; and
- ii. the use of livestock images on manufactured plant-based or synthetic protein packaging or marketing materials.

Response: Food Standards Australia & New Zealand (FSANZ) sets the food labelling standards as per the Food Standards Code (the Code). These standards are subsequently enforced by Australian states and territories and, in New Zealand, by the Ministry for Primary Industries.

As it relates to this inquiry, the *Labelling and other information requirements* section of the Code is most relevant. Fair trading laws and food laws also require that labels do not misinform consumers through false, misleading or deceptive representations.

From a practical standpoint, clarity of labelling on all food products is critical so that consumers know what they are buying – in this instance, either an animal product, an alternative product, or a hybrid of these. Labelling also informs the consumer on how to use a product (i.e. its functionality).

For these reasons, current product labelling wherein products clearly stipulate their nature as “plant-based”, “made with plants” or “vegan” is appropriate, especially those that bear additional labels including “meat-free” that further clarify the ingredients (or lack thereof). Functionality is given by labels such as “mince”, “patties”, “burgers”, “sausages”, “skewers”, “schnitzels”, “(meat-free) balls” and so on. These terms speak to the form of the product and how to use a product in terms of the cooking and dining experience.

There have been a range of products in Australian retail for over 10 years that use these terminologies. Examples include Quorn™, a mycoprotein (fungal) derived protein that was introduced in 2010 as several formed meat-style products such as mince, sausages, strips, patties, etc as well as a range of soy-based products under the Vegie Delights brand.

Looking to the scientific literature, a recent study by Gleckel (2020) entitled *Are Consumers Really Confused by Plant-Based Food Labels? An Empirical Study* found the following:

1. Consumers are no more likely to think that plant-based products come from an animal if the product's name incorporates words traditionally associated with animal products than if it does not.
2. Omitting words that are traditionally associated with animal products from the names of plant-based products causes consumers to be significantly more confused about the taste and uses of these products.

1b. The health implications of consuming heavily manufactured protein products which are currently being retailed with red meat descriptors or livestock images, including:

- i. consideration of unnatural additives used in the manufacturing process; and
- ii. consideration of chemicals used in the production of these manufactured protein products.

Response: In consideration of the health implications of processed food products, any comparisons made should be within a category (i.e. a traditional burger patty with an alternative burger patty). Heavily processed products, like a burger patty or a chicken nugget, cannot be directly compared with minimally processed products such as a steak or a chicken breast. A comparison can then be made on the health attributes of the products contrasting all nutrients, additives and methods of production.

Specifically, considering heavily processed protein products, there is an association between consumption of high levels of red and processed meats and increased risk of colorectal cancer^{1,2}. The Bouvard et al (2015) article cited summarises the findings of the International Agency for Research on Cancer Working Group on the Evaluation of Carcinogenic Risks to Humans, who examined the risks of red and processed meat through assessment of the published literature². They concluded that meat processing, such as smoking and curing, can lead to formation of carcinogens such as N-nitroso-compounds. They stated that there was sufficient evidence to suggest processed meats can cause colorectal cancer and increase the risk of stomach cancer. They defined processed meats as meat which had been transformed by processes such as salting, curing, smoking and fermentation.

However, these processed meats referred to may not be typical of more recent meat substitute products containing high levels of protein that are not derived from animals, and hence may not be problematic regarding increasing risk of gastrointestinal cancers. Nevertheless, it is possible that similar preserving compounds and/or production processes could be used in such products, and further extensive research is warranted before any conclusions or parallels can be drawn.

What is not asked herein is the health benefits that may be derived from consumption of heavily processed protein products. To this point, processing alone does not negatively impact the products. Rather it is the inclusion of unhealthy fats, high levels of salt and/or sugar.

Processed foods also offer an opportunity to:

1. Tailor the nutritional profile to reduce such components.
2. Increase fibre for the benefit of gut health; and/or
3. Deliver products in a convenient format to meet the needs of specific sub-populations. For instance, elderly populations require a higher protein ration, of 1.0-1.2 g/kg body weight, compared to 0.8 g/kg for the general population³. There is also a need with elderly populations to deliver products in forms that meet specific requirements of this vulnerable sub-population that can suffer from conditions such as sarcopenia (muscle loss) or dysphagia (swallowing difficulty).

1c. The immediate and long-term social and economic impacts of the appropriation of Australian meat category branding on businesses, livestock producers and individuals across regional, rural and remote Australia, including:

- i. the reliance upon imported ingredients;
- ii. the support of regional employment; and
- iii. the state and commonwealth taxation contribution from the Australian red meat and livestock sector.

Response: Several reports published over the past two years have identified the opportunity to value-add across all protein sectors, including the red meat, aquaculture, plant protein and alternative protein sectors^{4,5}. The Australian Farm Institute report (2020) identifies a ~\$20b opportunity for Australia, of which close to \$9b is for the animal protein sector⁴.

CSIRO views these as complementary opportunities to address the growing demand for protein⁶. The establishment of emerging industries in regional, rural, or remote Australia will serve to bring resilience and jobs to these regions, exemplified by the establishment of manufacturing facilities in Horsham by Australian Plant Proteins and Wodonga by v2food. While there is a current reliance on imported ingredients for domestic value-add manufacture, the investment in infrastructure for protein fractionation and mid-stream processing will support the growth of the industry and provide additional or stable revenue to growers, many of whom are also producers.

CSIRO does not provide any comment on items 1d and 1e.

Thank you for the opportunity to provide a submission to this inquiry. We welcome any opportunity to discuss this submission further or clarify any questions the Committee may have.

References

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2. Bouvard et al. (2015) Carcinogenicity of consumption of red and processed meat. *Lancet Oncology* 16(16):1599-1600: [https://doi.org.au/10.1016/S1470-2045\(15\)00444-1](https://doi.org.au/10.1016/S1470-2045(15)00444-1)
3. Bauer et al (2013) Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study Group. *J. Am. Med. Dir. Assoc.* 14(8), 542-559: <https://doi.org.au/10.1016/j.jamda.2013.05.021>
4. Australian Farm Institute (February 2020) The Changing Landscape of Protein Production: Opportunities and challenges for Australian agriculture.
5. CSIRO Futures (2020) Growth opportunities for Australian food and agribusiness: Economic analysis and market sizing.
6. FIAL (March 2019) Protein Market: Size of the prize analysis for Australia.

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