

Analysis of responses to Food Security Inquiry

Prepared for the House Standing Committee on Agriculture, Inquiry into Food Security by Geoff Ebbs, Griffith University, Business Strategy and Innovation. August 2023

This document is an analysis of all 180 Submissions to the Inquiry, downloaded and analysed using a variation of the approach used by Griffith University researchers as outlined in Submission 176. The findings presented here represent an initial analysis performed to meet the August 31 deadline specified by the Inquiry. A more detailed analysis will be available by December 2023.

That approach is designed to tease common threads out of wicked problems where multiple vested interests address different, but interdependent issues using different starting points and applying different values. The approach identifies values of categories that differentiate these points of view, or paradigms, and then seeks to explore the points of agreement and tension between those groups. This facilitates the navigation of the issue under examination by providing a map of common ground while highlighting the hot issues of contention. In this case, the nature of the authors making the submissions emerges as a major, top-level grouping, that allows for the identification of patterns in their concerns. Our previous experience in applying this approach, is that the results align with common-sense at a high level but identify surprising alignment of concerns when applied to the detail.

The structure that frames this analysis is based on four independent categories of variables that emerged as significant. They are the *type of author*, the *desired outcome*, the *identified problem(s)*, and the *recommended solution(s)*. The most significant groupings of *authors* are peak bodies, individuals, public sector | NGO | Health sector | Education (population focused) organisations, and corporations. The most significant *desired outcomes* are Economic growth through export, an improvement in Global or national nutrition (food availability), Health of the population (food quality), health of disadvantaged sections of the population (food equity) and reduction in environmental harm (food sustainability). The *problems* and *recommendations* are discussed in detail below, framed by the *desired outcomes* and groupings of *authors*.

A brief discussion of how this selection was made is useful for framing the basic approach taken in this paper.

Approach

The 180 submissions were coded conceptually using combination of open-ended coding and the typology developed by the researchers for previous research analysing urban food networks in South East Queensland. That coding is described in Submission 176. Among the categories of concepts that merged are *Definitions of food security*, the nature of the *evidence* provided in the submission, the *sector* in which the author operates, the stated vision for the future (*intended outcome*), and the actual *recommendations*. These codes were collapsed, combined, split and organised following {Gioia, 2013 #4019} and {Onwuegbuzie, 2012 #4027}, and that documentation is available on request.

For ease of comparison, all percentages given in this document are a percentage of the overall submissions unless otherwise indicated. These figures have been normalised to adjust for submissions with many appendices and for overlapping concepts. At this stage they are indicative rather than definitive. Many concepts are not mutually exclusive and so numbers may add up to

more than 100%. It is planned that the data will be published with the full analysis in December 2023.

On the completion of that process a number of categories were deemed to be less influential and considered as informational and incidental. In general, the *definition of food security* closely followed the *desired outcome* as indicated by the bracketed entries in the introduction. On the whole, the *intended beneficiary* of the recommendations was generally the *sector* represented by the author. The exception to this rule is that the authors from the population focused organisations (public sector | NGO | research organisations) tended to recommend solutions designed to improve nutrition for all or some of the population. The *responsible actor* was generally specified to be the government, hardly surprising in an Inquiry held by the government to recommend policy and regulation. The *recommended solution* was often a combination of changes to funding and regulation. Generally speaking, this took the form of less regulation and more funding of the sector being represented and more regulation and less funding of its competitors, suppliers and customers. For this reason, the identification of the target beneficiary is important because it helps identify the interests informing the submission and recommendations and so clarifies the intent of the recommendations.

The submissions authored by peak bodies (40%) are more clearly aligned with the interests declared in the submission, than those by individuals (16%) and population focused organisations (17%). Those groupings of authors tended to be concerned about individual consumers in aggregate, the whole of society, or the national interest as it has been defined by them. For example, Submission 22 is an individual submission promoting the protection of peri-urban farmland, based on individual lived experience. The immediate beneficiaries are other farmers, like the author, but the desired outcome is the better availability of fresh food in the western suburbs of Sydney.

Submissions from corporations, businesses and some educational institutions (29%), have a narrow focus, often framed as addressing a common good but specific beneficiaries are not clearly defined. For example, Submission 180 focuses on national security, combining trade and defence issues with food security of the Australian population and the role of food in the economic security of the nation. It is not evident from the submission itself that the authors provide consultancy services delivering similar messages to a range of audiences, including government agencies on a commercial basis. As a full declaration of interest, this author is developing a research method that helps unpack wicked problems. We thus see a pattern of self-interest, that varies by author grouping.

While self interest is natural and a useful guide to the intent of a submitting body, many of the submissions made by peak bodies promote the interests of their members at the expense of competing sectors in a zero-sum game approach to government policy. A classic example of this are the Submissions 115 and 117 representing livestock producers and Sub112 from Vegan Australia. The meat industry portrays grazing as an environmentally responsible use of marginal land that requires little infrastructure and produces minimal greenhouse emissions and proposes that funding be shifted from the more intensive crop land to grazing. Vegan Australia characterises meat production as a heavily subsidised, major source of emissions that should have its funding diverted to grain and pulse production to reduce emissions and improve the productivity of agricultural exports. Other peak bodies make similar claims about the sectors they represent as compared to those they compete with.

While this is a useful observation, it is not central to the thrust of these findings. It does, however, inform the decision to focus on those solutions that do not assume a zero-sum game and therefore simply advocate for protection of one sector at the expense of others. The competition of vested

interests, including different sectors responsible for food production, must be considered by policy makers and so cannot be dismissed as irrelevant. However, the analysis of those competing interests does not contribute to an understanding of the points of agreement and tension and so does not help us untangle the wicked problem of developing food security. This analysis puts it to one side precisely as a cause of the wicked nature of the problem that contributes little to its resolution.

Problems with inputs

One of the most common threads apparent in the submissions is that the external shocks of CoViD19 (51%) and the war in the Ukraine (25%) have exposed systemic weaknesses in the food supply. The most common of those weaknesses (regardless of cause) exist in the agricultural labour supply (73%) and the cost of inputs (89%). Those inputs include fertilizer (89%), fuel (60%), equipment (50%) and finance (66%). Comments on the price of energy in general require further analysis to separate the cost of electricity specifically, transport, on farm use of diesel and other aspects of energy. Transport is a pervasive issue as it impacts all aspects of the distribution system. It reappears below in the discussion of onshoring manufacturing.

These inputs are of greatest importance to submissions representing agricultural producers. That is by far the largest group of authors representing (61%) of the total submissions.

There are significant similarities between meat, grain, fruit and vegetable producers. It was surprising that concerns the level of concern over labour in the horticultural sector was not higher than average. That sector is represented by 68 submissions 56 of which identified labour costs as a significant obstacle. The vast bulk of these solutions identify food security as a *food availability* problem. They are generally focused on the global food supply and Australia's role as an exporter of commodities.

The suggestions regarding solutions to these problems are more varied. Labour shortages are generally thought to be resolvable by changes to immigration with some adjustments recommended in industrial relations law. A relatively small number of submissions (8%) focus on the use of robotics and other automation or agricultural technology (AgTech) (39%) to supplant or complement human labour. Of these only 10% were coded as being "novel" but that definition is subjective and may shift following further analysis.

Onshore manufacturing

A number (17%) of the overall submissions specifically identified that stronger onshore manufacturing of these inputs could protect Australian farmers from global price fluctuations, while recognising that in a fully functioning open trade system such industries may not be economic. General comments about increasing Australia's industrial capacity were widespread, anecdotally occurring in the vast majority of submissions. Some submissions do not differentiate between the manufacturing of agricultural inputs to protect farmers from rising costs and the onshore processing of food to protect farm gate prices from international commodity markets. Both recommendations are associated with the thorny issues of subsidies or tariffs but a few submissions suggest that stronger negotiation with international partners (presumably by Australian government agencies) could be used to obtain better prices rather than relying on regulatory protection.

Onshore manufacturing is important for the issue of food miles, or length of supply lines. This has an impact on the cost of transport, especially the shipping that carries Australian trade. That is especially significant in the consideration of national security. Sub180 for example, reminds us that Australian trade is carried on foreign ships. Again, the protection of Australian industry has impacts on global trade frameworks as well as the implicit costs which have encouraged it to move offshore.

Despite these caveats, the recommendations to support a stronger manufacturing sector stand out as a positive recommendation for change that does not constitute a zero sum game. As such, it stands out as a useful recommendation that resonates across the author groups and offers low hanging fruit in the development of a food security policy, despite its implications for international trade. It is important to note that it involves some trade off of efficiency for resilience.

Competition

Similarly, a number of submissions identify mining and other resource sector activities as potentially competing for land, groundwater and other resources as well as causing environmental damage that undermines agriculture. A small number of submissions (Sub002, Sub022) identify renewable energy as a threat, 25 submissions identify mining, specifically fracking for methane, as a significant threat to the water tables and other aspect of the agricultural landscape.

A small number of submissions call for a consolidation of production (eg. Sub114) in the interests of efficiency of scale and a similar number of submissions (eg. Sub099) calling for better regulation to counter the consolidation in the supply chain, especially in the retail sectors where supermarkets have a notorious reputation for driving down farm gate prices. Though not reflected in the submissions to this inquiry, other inquiries, including the 2020 ACCC Inquiry into supermarket pricing have found the supermarkets not guilty of such unfair practices, making it difficult for this Inquiry to take those comments at face value. Sub139 from Woolworths essentially requests a place at the table of any planning body that emerges from the Inquiry.

Technology

The consolidation of production appeals to some AgTech companies such as Bayer (Sub100), and is assumed by many of the submissions by researchers focused on technology as a potential solution to labour shortages, nutrient wastage and pollution, water inefficiency and the costs associated with these scarce inputs. These leading edge AgTech solutions represent the second category of recommendations that avoids a zero sum game of pitting one sector against another.

Essentially the proposition is that by refining the process of agricultural production we can increase its efficiency and reduce the wastage of inputs, and the creation of pollution, producing more food at lower cost and with less harm to the environment. This decoupling of environmental harm from economic growth is at the basis of many circular economy efforts and is exemplified by submissions Sub135 and Sub149.

The perceived conflict between the environment and agriculture is familiar territory from other areas of inquiry. It has plagued the Murray Darling Basin Management Plan and is the driving tension leading up to Ian Turnbull's murder of NSW Environmental Officer Glen Turner. It is exemplified in this inquiry by a small number of submissions (eg. Sub002, Sub022) see the environment as an external competitor that unnecessarily locks up land and water that would be better used for agriculture. In general, this view tends to appear in individual submissions rather than larger organisations such as peak bodies. One notable exception is the Institute of Public Affairs, submission XYZ, which calls for a moratorium on all climate and environmental legislation and a two for one legislative program whereby two laws are rescinded for every new law passed.

This is a particular example of the zero sum game problem that is deserves detailed attention because of the contrast with the 26 regenerative agriculture submissions, discussed in detail toward the end of this article.

Problems with food

While most of the submissions discussed so far, come from interest groups promoting the cause of their members, there is another significant grouping that calls for action to benefit either the population at large or specific, disadvantaged communities. This includes submissions from Health-related advocates (19%), some of the University and Public Sector (20%) submissions. These are generally focussed on inequity of food distribution and the relationship between nutritional value and price. Implicit in that discussion is the observation made elsewhere {Mok, 2013 #1416} that nutritional value is a focus of the affluent unavailable to disadvantaged groups who struggle to get enough to eat.

Some submissions note that this inequity is systemic. That is, agribusiness is focused on volume and calorific output rather than the more subtle aspects of nutrition and, as a result, lower quality food is cheap and readily available, while high quality and fresh produce becomes the exclusive preserve of the rich. The alignment of the export focused submissions from peak bodies representing various agricultural sectors with the use of food availability as the definition of food security supports this argument. The danger of focusing AgTech solutions on productivity and cost is that this may exacerbate the problem.

Clearly, there is a significant need to account for the tension between quality and quantity as the horns of a dilemma that leads to many perverse outcomes. Those outcomes include food deserts in low socio-economic areas of the city, among remote and regional populations especially First Nation communities, and most alarmingly in regional towns sitting in the midst of major food producing areas. It is also a source of a “resource curse” in which our focus on exporting commodities undermines the resilience of our food processing capacity, and small scale, local production, especially of high quality, fresh food.

Such concerns are sometimes dismissed by the agricultural sector as “special interests” or “naysayers”. This approach, though, leaves such problems to the government to clean up, creating a burden on both the public sector and the taxpayer as well as a systemic bias that cements disadvantage. Understanding and dealing with the systemic aspects of the problem is robust, resilient and probably cost-effective. It simply depends whether you take a whole of government view as opposed to a sector centric point of view.

Issues of scale

A similar framing can be applied to the issue of scale. It has already been noted that most sectors seek the expansion of their output, often accompanied by the consolidation of various interests within the sector. Bigger is generally better for both industry and government, especially when it comes to negotiation global deals. It is significant, though, that the same people criticise the consolidation of their upstream and downstream supply chains as unfair competition that reduces profits, often to the point of making agricultural production untenable. Whether it is the power of supermarkets, or suppliers of fertilizer, fuel and other inputs many submissions ask government to protect their interests and capacity to expand by standing up to other sectors or regulating them to reduce their power and influence.

By recognising that the role of government in controlling monopolistic behaviour is to allow a healthy diversity of activity so that both the benefits of scale and the building of resilience can co-exist much better solutions can be found. A cursory analysis of the almost universal observations about the impact of CoViD19 and the Ukraine war reveals that highly efficient, large-scale systems are, by definition, not resilient. Resilience comes from redundancy which is the enemy of efficiency.

The social impacts of largescale efficient production are not trivial. The depopulation of the rural landscape is at the heart of shortages in essential services such as health, education, aged care, and commerce. Focusing on the agribusiness sector to the exclusion of the larger society results in a blind spot about the costs to government of funding the efficiency of food production. It is one of a number of factors that emphasise the importance of taking a holistic view of food security.

Climate considerations

The terms of reference specifically called for input on issues of climate. The vast majority of responses identify both threats and opportunities with the most significant opportunity being the implementation of land management practices to sequester carbon emissions in both living plants and more significantly, soil. The rehydration of the soil through increased groundwater and the management of the small water cycle also has significant implications for climate management, especially avoiding the impact of drought and bushfire.

While most submissions identify the efforts made by each sector to reduce emissions and highlight the contribution that sequestration might make, only a handful of submissions put climate considerations as a primary focus. The discussions around renewable energy highlight the complex nature of the issue.

The agricultural sector is sensitive to the cost of energy and values the diesel rebate and other relief from the cost of energy input. The electrification of transport and other on-farm energy consumption offers relief for those energy costs but is not always seen as cost-effective. The on-farm production of renewable energy is widely seen as a secondary source of income, though is sometimes portrayed as a competitive force undermining the productive use of farmland. One submission highlighted the complementary use of solar panels as a shade system to allow horticultural activity in areas that suffer from harsh summer sun that would otherwise prevent horticultural activity. This is a text book example of a simple, low tech resolution to potentially complex problem. As with soil sequestration of carbon and water, this reduces the horns of a dilemma to a practical solution that combines two problems into one solution. The tension arises because it reduces the efficiency of a simple solar only installation thereby increasing the costs of energy production. The cost effectiveness is only apparent when you take the combined output of both energy and food production on the same unit of land.

Nature based solutions

These form the third, significant exception to the rule of zero sum approaches. In common with *AgTech*, nature-based submissions propose novel methods of production that increase output while reducing emissions, water extraction and nutrient overload. They have a significant advantage in that they call for a reduction in the use of technology, thereby minimising infrastructure and its emissions while increasing resilience. This has the triple effect of reducing costs and environmental damage while also reducing reliance on external inputs that make farmers vulnerable to international crises. The “magic pudding” effect of getting more for less is achieved by working with nature to maximise the capture of sunlight, water and air, sequestering significant volumes of carbon, nitrogen and water in the soil where it increases productivity and reduces environmental impact. While inarguably novel, when compared to the numerically dominant agribusiness submissions, regenerative agriculture has an established track record of empirical evidence and occupies a similar niche as *AgTech*, in terms of its capacity to address food security, despite its difference in approach.

The nature-based submissions are neutral or supportive of *on-shoring manufacture* of inputs and processing, which provides a complementary, non-controversial pathway for policy development. The scale of many regenerative livestock operations indicates that they can contribute significantly to export growth and their complementarity to the *nutrition-focused submissions* of the health advocates provides another source of synergy for planners.

The tension arises between these submissions and those of the input suppliers <Bayer>. Industrial approaches to agriculture make huge profits for global manufacturers and they heavily fund many of the peak bodies that represent their customers. The challenge for a government trying to address food security is to navigate the evolution of diversity in a sector dominated by a small number of global monopolies.

Conclusions

The various definitions of food security are instrumental in understanding the focus of different groups of authors. Most export focused sectors and their peak bodies emphasise the *availability* of food and consider increasing exports as the primary outcome and feeding the global market as the secondary outcome which the Inquiry should consider. In contrast, the health-based and population-centric submissions focus on *food quality* and/or *food equity*, clearly significant concerns for government although they are often siloed off into welfare, health, regional planning and First nations policy areas. The submissions focused on environmental issues and long term social well being define food security in line with *food sustainability*. Over recent decades, governments of different persuasion have been variably concerned about these issues but have been consistent in seeing them as peripheral to the focus of agricultural production {Sippel, 2021 #3544}.

The need to increase the resilience of food production so that it can resist global shocks and the climate emergency dominates the Inquiry to an extent that exceeds its emphasis in the terms of reference. While there are a range of views as to how that is best achieved, there are a number of suggestions that resonate across submissions or, at least, minimise the dissonance between them. The onshoring of manufacturing both inputs and food processing is one such suggestion. While superficially simple, it strays into the difficult territory of tariffs, subsidies and international trade agreements and requires a powerful stance by government that it is prepared to sacrifice some efficiency in the name of resilience.

The resolution of labour force shortages through changes to immigration, education and industrial relations policy is another approach that receives almost unanimous support although its implementation is complex and fraught with a wide array of vested interests and complex social and financial challenges.

Innovation in the production and processing of food has a natural correlation with any notion of improving food security, regardless of how it is defined. An increase in production can only come from an increase in resources, labour, or productivity and productivity increases assume innovation of some kind. In the face of constrained or reduced resources – such as land, water and nutrients – innovation will be required to maintain current levels of production, let alone respond to increased demand from a growing population. The suggestions for productivity increases made by the submissions fall into three main categories, more support of existing industry, investment in new and advanced AgTech, and support for nature-based solutions to do more with less. Each approach has its advantages and its advocates.

Numerically, the submissions supporting bigger investments in business as usual dominate the submissions to the inquiry. They build on the track record of existing industry and the historical

contribution they have made to the Australian economy and to feeding the global population. While the expansion of existing agribusiness clearly offers a pathway to increased food availability it does not address the underlying challenges appearing in the global economy, the existential threats of the climate emergency and the environmental challenges emerging from existing methods of production. Most significantly, ramping up existing business, along with many of the high tech solutions maintain the focus on efficiency and do not take account of the tradeoff between resilience and efficiency that has been so brutally exposed by the economic shocks resulting from CoViD and the war in Ukraine.

AgTech and regenerative approaches to innovation in food production both offer a means of decoupling production from environmental harm and resource depletion. Understanding the fundamental differences between these approaches is essential to building a resilient and secure food supply. In general, technology accelerates production using a reductionist approach of isolating essential inputs and minimising waste thereby increasing efficiency. While this achieves the aim of producing more with less and might minimise emissions, pollution and resource depletion it sidesteps the deeper issues of social dysfunction, inequity and the alienation of nature from the production of food.

Regenerative approaches are almost diametrically opposite. By integrating natural cycles into a holistic system that maximises the capturing of sunlight, water and hence nutrients, they minimise the external inputs required and build a resilience that is built on diversity and complexity. There is implicitly a sacrifice in the short-term efficiency as resources are invested in that long term resilience. The advantages come from maximising the capture of sunlight water, carbon and nitrogen and the storage of all those elements in the soil. The complexity embedded in such systems is an anathema to industrial efficiency and also the basis of their distinct advantage.

Advocates of both AgTech and regenerative farming tend to be dismissive of the other, but it would appear wise to ensure that both approaches are supported as different ways to support existing industry, as distinct from being seen as alternatives or competitors to it and to each other. As identified in the section, *Issues of Scale*, similar arguments regarding support for small local solutions as opposed to largescale global solutions helps build the diversity and resilience required to obtain a secure, stable and nutritious food supply.

There are no silver bullets, but there are a number of striking examples of low hanging fruit that can generate a more cooperative and diverse approach to future productivity and build an integrated food supply that is not dependent on global supply of inputs or global markets for our national survival. In the authors' opinion that is a reasonable working definition of food security.

Finally, the establishment of this Inquiry and its Terms of Reference have provided a platform to encourage this rich diversity of recommendations. The efforts of the individuals and organisations in responding to that opportunity have enabled the analysis provided in this document. The authors would like to thank the Committee and the respondents for the opportunity to review such a diverse and significant body of work, to carry out the analysis provided here.