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Ms Meryl Swanson MP
Chair
House of Representatives Standing Committee on Agriculture
PO Box 6021
Parliament House
CANBERRA ACT 2600

Via email: agriculture.reps@aph.gov.au

17 October 2023

Dear Ms Swanson

Re: Supplementary Submission to the House Standing Committee on Agriculture's inquiry into food security in Australia

CropLife Australia thanks the Standing Committee on Agriculture for the opportunity to provide evidence to the public hearing held for its inquiry into food security in Australia on 21 June 2023.

As foreshadowed during our appearance, it is with great reluctance that I write to inform you that the submission provided to you by Australian Organics Ltd ('Australian Organics' submission 28) makes statements around food quality and safety that are not only misleading, but also pose a danger to the policy settings that support food security both at home and abroad.

The following criticism is not of organic farming nor of the farmers who choose an organic farming system but specifically, the misleading, unprofessional and unethical nature of the Australian Organics' submission. For the record, the plant science industry, including CropLife's member companies, support all farming systems be they organic, conventional or modern. Indeed, CropLife Australia member companies provide large quantities of pesticide products, both organic and biological based, (and synthetic based when exemptions are provided to deal with disease outbreak) to organic farmers.

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The Australian Organics' submission makes the spurious claim that organic food is superior to non-organic food on the grounds of nutritional content and human health. The submission purports that these claims can be founded by relying upon a handful of selected scientific articles. Upon further investigation, however, these claims fail, whether recklessly or otherwise, to accurately represent the context, empirical evidence and findings of these journal articles. For the information of the Committee, I have appended to this letter a critique of the claims made within Australian Organics' submission.

Of particular concern is the fact that Australian Organics have sought to use the Committee's inquiry, which seeks to identify options to strengthen and safeguard food security in Australia, as a platform to make misleading and scandalous claims that run contrary to global scientific and regulatory consensus. These claims seek to weaponise the issue of the food that Australian mums and dads feed their families, they risk creating unnecessary guilt in parents of children with autism spectrum disorder and they actively seek to undermine the science and systems that ensure Australians are able to safely access a balanced and nutritious diet. The seriousness of the impact of these types of entirely false and unfounded claims can be seen in the disproportional risk they pose to Australian families with lower incomes. Studies suggest that marketing that focuses on the use of pesticides in food not produced in organic systems, may lead to families on lower incomes reducing their purchase of fresh fruit and vegetables due to manufactured and unnecessary concerns over food not produced using organic farming systems. This is regardless of the verified and confirmed safety of these foods.¹ Quite frankly, what Australian Organics has attempted to do in their submission is the agricultural equivalent of the anti-vaxxer movement's false, misleading and unethical attempts to suggest that vaccines cause autism.

While CropLife supports the ability of individual farmers to implement organic production systems as part of their farming businesses, it is a fallacy to claim that the organic foods they produce are safer than other foods. The science that underpins Australia's food safety systems and the regulation of agricultural technologies ensures that food produced using conventional systems that use synthetic chemistry or more modern systems that utilise the biotechnology in the form of genetically modified crops are safe to eat.

Further, while largely unknown to the general public, organic farming systems in Australia generally rely on the use of non-synthetic chemical pesticides that have been approved by the Australian Pesticides and Veterinary Medicines Authority. As referenced earlier, these organic systems also permit the use of synthetic chemical pesticides when authorised under an exemption to allow the farmer to manage specific special circumstances, such as disease outbreak in a crop. Given this, it should not be lost on the Committee that the arguments put forward by Australian Organics ironically risk undermining the very regulatory systems that ensure that the crop protection products used in organic farming are safe to human health and the environment.

Should you have any questions or require further information, I would be happy to discuss this with you. Likewise, please do not hesitate to contact Justin Crosby, Director – Government and Strategic Relations via [REDACTED] or on [REDACTED] for further information.

Yours sincerely

Matthew Cossey
Chief Executive Officer

¹ For example see Huang, Yancui MS; Edirisinghe, Indika PhD; Burton-Freeman, Britt M. PhD, MS (2016) 'Low-Income Shoppers and Fruit and Vegetables: What do they think' *Nutrition Today* (51(5) p 242-250.

Analysis on claims made in Australian Organics Limited Submission to the House of Representatives' Standing Committee on Agriculture's Inquiry into food security in Australia

Overview

Australian Organic Limited provided a submission to the House of Representatives' Standing Committee on Agriculture's Inquiry into food security in Australia ([submission 28](#), the 'submission'). The submission made a number of claims regarding human health and environment that are misleading.

The analysis below examines the claim and the references provided by Australian Organic.

Health and Consumption

In the section titled "Health and Consumption", the submission contained a series of bold claims, about food grown conventionally (ie: not produced using organic farming systems). While these claims are somewhat qualified by the following statement: "*The toxicity of a given pesticide depends on a host of factors, including the dose and duration of exposure, the synergistic interactions with other chemicals and route of exposure (inhalation, skin, ingestion, etc.)*", they are dangerously misleading.

Claim: *Many of the pesticides detected in conventional foods are toxic, carcinogenic...*

Cited source:

Guyton, K.Z.; Loomis, D.; Grosse, Y.; El Ghissassi, F.; Benbrahim-Tallaa, L.; Guha, N.; Scoccianti, C.; Mattock, H.; Straif, K. Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate. *Lancet Oncol.* 2017, 16, 490–491.

Analysis:

The source referenced indicates that "...*the evidence from human studies was scarce and considered inadequate*", for all of the compounds in the reference. All were listed for carcinogenicity HAZARD on the basis of animal studies with extreme exposure, which do not translate into increased risk. These factors are assessed and mitigated by robust risk evaluation, as performed by science-based regulatory bodies such as the APVMA, USEPA, and Canada's PMRA.

Claim: *...neurotoxic or confirmed endocrine-disrupting chemicals...*

Cited source:

Mnif, W.; Ibn Hadj Hassine, A.; Bouaziz, A.; Bartegi, A.; Thomas, O.; Roig, B. Effect of Endocrine Disruptor Pesticides: A Review. *Int. J. Environ. Res. Public Health* 2011, 8, 2265–2303.

Analysis:

The cited source identifies a list of pesticides which have undergone multiple independent, global risk evaluations where some evidence of endocrine interaction has been observed at doses thousands of times higher than any realistic potential. These factors are assessed and mitigated by robust risk evaluation, as performed by science-based regulatory bodies such as the APVMA, USEPA, and Canada's PMRA.

Claim: **...and can negatively affect human health even at very low concentrations.**

Cited source:

Rempelos, L., Wang, J., Barański, M., Watson, A., Volakakis, N., Hoppe, H. W., ... & Leifert, C. (2022). Diet and food type affect urinary pesticide residue excretion profiles in healthy individuals: results of a randomized controlled dietary intervention trial. *The American journal of clinical nutrition*, 115(2), 364-377.

Analysis:

The cited source is based on a small, unblinded study that showed eating food that contained pesticide residues resulted in urinary excretion of those pesticides. This study does NOT show that any (let alone many) of the pesticides used affect health at very low concentrations, in any direction. The study merely shows excretion rates of pesticides. The statement by Australian Organic is not supported by their source, but is conjecture transposing the hazards of massive, unfettered acute exposure to a small number of chemicals.

Claim: **Children possess a unique susceptibility to toxic chemicals because they drink more liquids, breathe more air, and consume more food per kilogram of body weight than adults. This also makes them more vulnerable to environmental toxins such as pesticides, potentially causing severe long-lasting damage**

Cited source:

Committee on Pesticides in the Diets of Infants and Children. "Pesticides in the Diets of Infants and Children." National Academy Press: Washington, DC. 1993. Retrieved July 11, 2019, from <https://www.nap.edu/read/2126/chapter/1#xix>

Analysis:

OAL uses the veracity of the cited source to obfuscate massive occupational exposure to a raft of known environmental pollutants (such as diesel exhaust fumes, and literal toxic waste) with dietary exposure to extremely minute quantities of several pesticides. While it is true that infants and children are more sensitive to the toxicity of many compounds, the cited article presents the guidance for modern regulatory risk assessments. These factors are then managed and mitigated by robust risk evaluation, as performed by science-based regulatory bodies such as the APVMA, USEPA, and Canada's PMRA.

Claim: **Pesticide exposure during pregnancy has well documented in-utero deleterious effects including pre-term birth,...**

Cited source:

Larsen, Ashley E et al. "Agricultural pesticide use and adverse birth outcomes in the San Joaquin Valley of California." Nature Communications, 8, 302 (2017). Available at: <https://www.nature.com/articles/s41467-017-00349-2>

Analysis:

Extract from the cited source:

"analysis indicates that agricultural pesticide exposure increases adverse birth outcomes by 5–9%, but only among the population exposed to very high quantities of pesticides (e.g., top 5th percentile, i.e., ~4200 kg applied over gestation)"

Such an exposure is unusually high, indicating social inequality and lack of availability of PPE, not dietary consumption.

Claim: **...male reproductive developmental and genital problems...**

Cited source:

Anderson, Helle R. et al. "Impaired Reproductive Development in Sons of Women Occupationally Exposed to Pesticides during Pregnancy." Environmental Health Perspectives, 116(4): 566-572 (April 2008). Retrieved July 11, 2019, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2290975/>

Analysis:

Cited source shows a small sample size, demonstrating with extreme occupational exposure (not dietary) and results which are statistically insignificant for all but one subset of the parameters.

Claim: **...developmental neurotoxicity and ASD (autism spectrum disorder).**

Cited source:

Shelton, JF et al. "Neurodevelopmental disorders and prenatal residential proximity to agricultural pesticides: the CHARGE study." Environmental Health Perspectives, 122(1): 1103-9 (October 2014). Retrieved July 11, 2019, from <https://www.ncbi.nlm.nih.gov/pubmed/24954055>

Analysis:

Extract from the conclusion of the cited source

*"Children of mothers who live near agricultural areas, or who are otherwise exposed to organophosphate, pyrethroid, or carbamate pesticides during gestation **may be** at increased risk for neurodevelopmental disorders".*

The link between the claim and evidence are at best weak. Crucially, the confounding variables (Socioeconomic status, race, and education), while "controlled" in the experimental design, still better illustrates social inequalities than exposure to raw chemicals. Further, this effect is non-existent at dietary exposure levels. The lack of qualification in the submission appears to be a deliberate obfuscation between known occupational exposure hazards, and regulated food quality parameters.

Claim: **Pesticides, like heavy metals, can bioaccumulate (increase in concentration over time).**

Cited source:

Environmental Working Group. "Triple play: EWG posts 'Dirty Dozen' list of fresh produce items." Food Safety News, April 10, 2018. Available at: from <https://www.foodsafetynews.com/2018/04/triple-play-ewg-posts-dirty-dozen-list-of-fresh-produce-items/>

Analysis:

The cited source relied on is a media release which highlights the widely-debunked and heavily criticised "dirty dozen" campaign by the American "EWG"- Environmental Working Group. This blanket statement is not only not supported by the data at the link, but is more seriously flawed. Bioaccumulation refers to increasing concentrations of toxins not over time, but upwards through food chains to tertiary consumers through diet- apex consumers. The potential for bioaccumulation is an environmental factor which is assessed by global regulators, including the Australian Pesticides and Veterinary Medicines Authority.

Claim: **Glyphosate, a commonly used herbicide, has been shown to decrease sperm quantity and quality in [rats and] humans**

Cited source:

Liu, J. B., Li, Z. F., Lu, L., Wang, Z. Y., & Wang, L. (2022). Glyphosate damages blood-testis barrier via NOX1-triggered oxidative stress in rats: Long-term exposure as a potential risk for male reproductive health. Environment international, 159, 107038.

Analysis:

In the cited source, the rat study's lowest parameter starts at the ADI (acceptable daily intake) and increases in dosage to levels where we expect to see effects. This effect disappears with diets that are below the ADI, as expected. These types of studies support the levels which are assessed and mitigated by robust risk evaluation, as performed by science-based regulatory bodies such as the APVMA, USEPA, and Canada's PMRA.

Cited Source:

Chiu, Yu-Han et al. "Fruit and vegetable intake and their pesticide residues in relation to semen quality among men from a fertility clinic." Human Reproduction, 30(6): 1342-51 (June 2015). Retrieved July 11, 2019, from <https://www.ncbi.nlm.nih.gov/pubmed/25824023>

Analysis:

In the cited source, the human data contrast two separate diets. The cohorts were segregated by their reported propensity to eat fruits and vegetables which were characterised by the USDA in random samples as having "more" or "less" pesticide residues. However, in effect, this study measures the nutritional impact of eating two widely disparate diets.

Claim: Historical nutrient content data for fruits and vegetables spanning 50 to 70 years show apparent median declines of 5% to 40% or more in minerals, vitamins, and protein in groups of foods, especially in vegetables..

Cited source:

Davis DR, Epp MD, Riordan HD. Changes in USDA food composition data for 43 garden crops, 1950 to 1999. J Am Coll Nutr. 2004 Dec;23(6):669-82. doi: 10.1080/07315724.2004.10719409. PMID: 15637215.

Analysis:

The cited source is a USDA study comparing several nutrients in vegetables and, while it does show small declines in median (but not absolute) values of a small handful of measured nutrients, the majority of the nutrients assessed have remained consistent for the course of the 50-year evaluation. Of those showing declines, this is reflected in the substantially increased yields of food crops harvested over this timeframe (most notably, protein).

Claim: ... Research has shown certified organic foods can be more nutritionally dense than their non-organic counterparts and deliver more essential nutrients per calorie consumed (unsupported) ... increased antioxidant activity, phenolics, flavonoids, polyunsaturated fats and omega-3 fatty acids, micronutrients, protein, and other non-essential amino acids compared to conventional foods

Cited source:

Ranadheera, S., Gardner Lee, S., Wittwer, A., University of Melbourne. (2021). How Do Organic and Non-Organic Foods Influence Our Gut Microbiome? Available at: <https://pursuit.unimelb.edu.au/articles/how-do-organic-and-non-organic-foods-influence-our-gut-microbiome>

Analysis:

The cited source concludes that the “review of current literature did find that **some** organic foods may be higher in some factors that benefit the gut microbiome, but the degree of these positive effects is not certain given the limited number of studies were undertaken to date”.

Soil and food Security

Claim: Synthetic pesticides have been shown to enhance pathogenic microbial species in the soil, impair plant defence systems and reduce uptake of nutrients by crops.

Cited Source:

Martinez, D.A.; Loening, U.E.; Graham, M.C. Impacts of glyphosate-based herbicides on disease resistance and health of crops: A review. Environ. Sci. Eur. 2018, 30, 2.

Analysis:

The cited source showed data generated by “...treatment of [glyphosate susceptible] sunflower seedlings with sub-lethal concentrations of a GBH (Roundup Ultra, Monsanto co., at 6.0% label-recommended dosage)”. This is a level where it would be expected to see significant damage to susceptible plant species. To this end, the source provides evidence that glyphosate is, in fact, a herbicide and impacts susceptible species.