Ethics and aesthetics of alternative protein in Japan

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Abstract

Given the increased attention to environmental and ethical concerns from industrial livestock operations, there has been a boom in alternative protein (AP) products in the Euro-American markets. AP products have garnered significant media attention and financial investments. This paper centres on alternative meat in Japan as an example of the broader AP market. There are some analyses of their dynamics in terms of market growth and consumer attitudes in these regions. However, the dynamics in Asian markets — where the meat alternatives have historically been a part of the culinary traditions — have been under-explored. This paper zooms in on the experience of Japanese alternative meat and explores different ethical discourses that have emerged to promote it.

Introduction: Alternative protein and its emplacement

There is a growing literature on new developments in the food market around AP but many of the studies have focused on the markets in Europe and North America, particularly California. Jönsson *et al* (2019) researched "post-animal" novel food products such as alternative eggs, milk, and meat in the US, while Sexton *et al*. (2019) and Guthman and Biltekoff (2021) examined AP startup companies in California. Sippel and Dolinga (2023) analysed market players in the US/Europe, especially in California. These studies show how these alternative protein products conjure sometimes fantastical hopes of better, more sustainable, healthier, and animal-friendly products. For instance, Stephens (2013) interviewed scientists and animal advocates in Europe and North America and found the discourses of animal liberation. Amato *et al*. (2023) conducted a systemic review on stakeholders' beliefs about AP and found that potential impacts on human health, animal welfare, and other ethical concerns are aspects frequently and positively mentioned by AP stakeholders. Sexton *et al*. (2019) explored AP stakeholders in the US such as Beyond Meat and Mosa Meats. They identified narratives of "goodness for" health, food security, animals, and the environment. Guthman and Biltekoff (2021) analysed narratives by California-based startups for AP and found similar promissory languages of sustainability and wellbeing. In particular, they connect the discourse to the promise of dematerialization that claims to produce foods from nothing or very little or from materials that would have been wasted.

These studies have pointed out the often grandiose promise of AP and called for critical investigations into the actual delivery of these promises. Despite the claim of transparency and accountability by the start-up companies, the actual processes and the impacts in terms of health, well-being, and low environmental footprint are usually not disclosed by these companies (Guthman and Biltekoff, 2021).

Sexton *et al.* (2019) pointed out how such cultural-social dynamics of the alternative meat have been impacted by the culture of Silicon Valley where many startups are located or are drawing their cash from. There is a need to analyse the "specific role of place in the process of AP market formation" (Sexton *et al*., 2019: p. 451) and how the place shapes the "ontological and political-economic trajectories of this emerging alternative food sector" (Sexton *et al*., 2019: p. 464). This paper contributes to this lacuna in the literature on the geographic variations in the development of the AP sector and its promissory narratives in the case of Japan.

Ethical debates around meat eating in Japan

In Japan, questions about the ethics and sustainability of the existing food systems have been raised by the alternative food movements including organic/natural farming movements as well as consumer movements often centred around cooperatives. While some have become conventionalized, many retain the movement-like characteristics, espousing non-GMOs, local food, and organic food. Many of these started from the idea of *teikei*, the direct relationship between consumers and farmers with the objective not only of benefiting consumers via the elimination of middlemen but also of supporting farmers and rural communities. This has been an important issue due to de-peasantisation and de-agrarianisation in Japan (Hisano *et al*., 2018).

In terms of general consumer attitudes about sustainability and ethics of foods, studies have found high concerns about food safety. Anxiety is punctuated by a series of scandals around food safety (Yamaguchi and Suda, 2010; Tanaka, 2008). Specifically about AP, the unease about the health impacts of Westernization of diet is particularly relevant.

Meat eating was long prohibited in Japan. The official prohibition was first issued in 675 and the introduction of Zen Buddhism increased restrictions against meat eating with many official injunctions. Meat eating was considered sinful as it kills animals, an act that comes with *kegare* (impurity) (Jaffe, 2005). The official ban and social taboos did not eliminate meat eating and some meat such as wild boar and venison continued to be eaten. However, by the 16th century, "the eating of the meat of domesticated animals acquired the status of a taboo in Japan" (Cwiertka, 2006: p. 26). Significant culinary tradition of *mitate* (mimicry) foods developed that sometimes playfully simulate animal products using non-animal ingredients. The long-standing social stigma around meat-eating was officially and symbolically broken when the emperor announced his meat-eating in 1872. Even the Buddhist practitioners started to see meat eating as a way to modernize the religion (Jaffe 2005).

Yet it was only in the post-WW II period that meat eating rapidly grew among the regular citizens. The meat consumption in 1965 was 9.2 kg, which jumped to 34 kg in 2021 (see https://www.maff.go.jp/j/pr/aff/2302/spe1_01.html). Although the level of meat consumption is still low compared to the Euro-American nations and some Latin American countries, there has been an increase in anxiety about the overconsumption of meat as the Japanese morbidity and mortality pattern shifted to more chronic diseases than infectious diseases.

Method

We compiled the data on the alternative protein market in Japan. There is no single industry association for AP products. Even major business databases, such as Nikkei Compass and Nikkei Telecom, do not offer any business categories related to AP. Nikkei Compass instead provides seven related business themes, including vegetable meat, plant-based food, and cultured meat, but the list of companies under these themes (17 for vegetable meat, 7 for plant-based food, 2 for cultured meat, and 9 for insect meat) seems incomplete. Therefore, we referenced several sources including a food tech media, ATM.jp, which had a relatively comprehensive and updated list of 32 companies, and a report by Next Meats, an AP startup (see https://artificialmeat.jp/meat-substitute-japanese-manufacturer/). We decided to focus on the companies that are located in Japan, which are producers of AP products themselves and already have products on the market. After carefully examining and eliminating those that did not meet these criteria, we identified DAIZ, Green Culture, and Next Meats as the cases for AP startups. Nippon Ham/NH Foods and Otsuka Foods were chosen as the cases of the existing food producers who have entered into the AP market. We examined the websites as well as social media posts by these companies.

Market players

There are two categories of players in the contemporary AP market in Japan. The first is the already-established large food manufacturing companies and the second is new startups that have successfully courted the support of established companies and venture capitalists. An example of the first category can be seen in a consortium of companies called "Plant-Based Lifestyle Lab" established in 2021 which includes large food manufacturers such as Kagome, Itochu (trading companies), Fuji Oil, NTT (originally a telephone company but recently acquired a convenience store chain) and Calbee (there are 47 participating companies, of which the 15 founding members are all large established companies). The Japan Soy Meat Association, which was established in 2023, is led by existing food giants such as Nippon Ham, Ito Ham, Otsuka Foods, Marukome Foods and Starzen (a trading company specializing in processed meat). Interestingly, out of three leading AP startups, only DAIZ is a member of the former association, while the latter association is exclusively led and organized by the existing big food companies.

Even as for the startups, the funding seems to come from existing food businesses. For instance, DAIZ has received investment from 17 companies, mainly big domestic companies, including Nisshin Foods, Nichirei Foods, Ajinomoto, Miyoshi Oil and Fat, and Toyo Seikan, all of which are large food manufacturers. Green Culture has received investment mainly from a Japanese leading investment fund company and two food companies, Kameda Seika and Oisix ra daichi. Next Meats is rather exceptional in terms of being listed in the American stock market to raise capital. Hence the Silicon Valley style financialisation seems to have had less impact in the Japanese market, at least up to the time of writing, in comparison with the American experience narrated by scholars such as Guthman and Biltekoff (2020).

Ethical promises

Our analysis of discourses found various ethical promises made by AP companies. We have identified five themes. First is the health benefit. For instance, many companies emphasize "plant-based ingredients" and their nutritional benefits. Otsuka's *Zeromeat* says that it is "made only with plant-based ingredients primarily soybeans" and talks about how soybean's main nutrition is protein. DAIZ's *Miracle Meat* features its patented technology using germinated soybeans to emphasize that the product contains high levels of isoflavone and other nutrients and has high digestibility and absorption.

Second is the environmental benefits. The degree of environmental claims-making varies, but new startups tend to provide grand statements about environmental benefits and frame their corporate identity as a mission-driven one. For instance, Green Culture's marketing phrase for its *Green Meat* is "forever with health and the Earth" and it says "We will...help maintain the health of people and the continued greenness of our planet." As in this case, some are taking the claim to planetary scale environmental benefits. Next Meats' website starts with a dramatic video of the rotating Earth in space with the marketing claim, "We shall not terminate the Earth" and "putting our shared planet first".

The third is convenience. All but one sells only the deli-type foods that do not require cooking from scratch and the products are flavoured and meant to be just heated up by the customers. For instance, Nippon Ham's *NatuMeat* line has products like fried "chicken," fried "pork" and hamburger patties that could be "easily cooked in a toaster" (written on the packages). DAIZ collaborates with a convenience store giant, Seven-Eleven for the production of "Mirai (Future) Deli" series using DAIZ's alternative protein as the substitute for meat/fish meat. The brand only includes premade deli foods such as "chicken" nuggets, sandwiches, noodles with ground "meat", and rice balls. Similarly, Otsuka's *Zeromeat* appeals the ease of eating plant-based foods by saying "We are committed to convenience: we have

made convenience a priority so that busy people can enjoy the products by microwaving the product and eating them".

Fourth is the innovative aspects of the products. Here the startups tend to make references to data science. Next Meats says that: "Our strength comes from our closely connected R&D network that helps to develop ideas around improving taste and texture. Researchers from around the world have openly collaborated – combining ideas from various fields, including life science, food engineering, and genetic engineering. We make full use of the ideas and technology gained from this process, to improve Next Meats every day". The website features a person in protective eyewear and a lab coat looking at a test tube, and has a video entitled "Meet our scientist" on a staff researcher who has a Ph.D. in agricultural engineering (see https://www.nextmeats.global/lab). Similarly, but in a more modest form, Green Culture appeals the high-tech nature of the product, writing that "we are mixing data science with food manufacturing technologies to structure plant-based meat so that we can provide plant meat that is as delicious as meat at the cost that is close to meat's".

The last theme is the benefits to the local economy. DAIZ highlights its origin in Minamata city (the site of industrial pollution by methylmercury poisoning in Kumamoto Prefecture), a place that experienced, according to DAIZ, "the largest post-war environmental tragedy". It connects the locality to its mission, saying that "based on this painful experience, this region had aimed to rejuvenate the environment before the SDG became big in the Euro-American regions" its mission being aligned with it DAIZ has made local economic contribution an important part of its stated mission. It has committed to sourcing soybeans domestically in order to bolster local and domestic agriculture. Although DAIZ was the only company in our sample that made explicit comments about moral commitment to the local community, we found this theme in other stakeholder discourse. For instance, there are smaller, regionally-based food companies that have developed or are developing plant-based meat products using regionally available resources, such as mushrooms and brown rice and they tend to feature their commitment to local rejuvenation.

These themes invoke a morally righteous position of the AP products. They are portrayed as ethically superior as it promotes environmental and economic sustainability. Indexed as the embodiment of efficiency and meritocracy, the themes of innovation and convenience are often folded into the ethical claims about AP products under the influence of neoliberal governmentality that privileges market-centric logics. Similarly, neoliberal responsibilisation has moralised individual health management.

Interestingly, the ethical benefits above are presented as not compromising the taste. DAIZ markets its product as having elasticity and texture of meat". Next Meats sells its meat alternative to roast meat restaurants and for retail markets. It markets its products as close to the taste and texture of animal meat. The company says that "it has sought to enhance deliciousness but has also committed to getting it close to the texture of meat by substantial research". It claims that "Next Meats is most particular about taste and texture, and we receive comments from customers such as "texture is close to meat" and "I'd assume it would be meat if not told otherwise".

Concluding thoughts

The promissory claims are similar but slightly different from those found in the Euro-American contexts. First, little attention is paid to animal welfare. In contrast, Sexton *et al*. (2019) analysis of American startups found that environmental and animal welfare claims to be one of the prominent promises. Similarly, a systemic review conducted by Amato *et al*. (2023), which mainly covered the Euro-American contexts (the only exception was for China), found that beliefs about positive consequences on animal welfare were frequently expressed by AP stakeholders. Perhaps due to the small-scale nature of Japanese

cattle and pork industries in comparison with the American ones, the degree of animal welfare concerns is much less in Japan. Furthermore, several studies have shown a relatively low proportion of Japanese people self-identifying as vegan or vegetarian and a similarly low proportion of Japanese people aware of and conscious of the idea and practice of animal welfare (Shiga *et al*., 2022).

The second difference is the prominence of health benefits and convenience perhaps even more so than Euro-American literature has suggested. This is perhaps related to the fact that the key players in the Japanese market are existing food producers who take AP as an addition to their main products. These producers may be aware that Japanese consumers have relatively low concerns about climate change and the environment (Boston Consulting, 2022; Dentsu Soken, 2023; Murata, 2023; PEW Research, 2021). Hence AP might be a strategy of product diversification that has "healthier" and "easier" characteristics than ecological ones.

Another dimension of difference is the discourse around local food/domestic food production. In other studies that have been summarised above, there is little, if any, mention of the ethical value of AP in terms of its contribution to local agriculture or economy (although these seem to be some examples, such as Respect Farm in the Netherlands-we thank the reviewer for this insight). Guthman and Biltekoff (2021) astutely observed that many companies were silent on how the products would depend upon soybeans cultivated in Amazon with significant environmental impacts. In our data, while DAIZ was the only one that made this claim, the linking between AP and national food security is quite pronounced at the national policy level discussions. For instance, the Council for Public-Private Partnership in Food Technology was established in October 2020 by the Ministry of Agriculture with the objective of "utilizing food tech and other new technologies to promote food, agriculture, forestry, and fisheries and to strengthen food security" (see https://www.maff.go.jp/j/shokusan/sosyutu/). The extremely high rate of import dependence has been a significant policy concern for the country which can heighten the virtue of locally-sourced AP. We expect this theme will be particularly promoted in the case of cell-cultured meat (not yet marketed fully in Japan) as the discourse focuses on the "resource-poor" Japan and how new food technologies need to address national food security.

In terms of the market structure, it is important to notice how the AP market is being crowded by big food companies or new startups despite the presence of many producers of traditional soy products and meat alternatives. Financial and capital gaps aside, the shift in aesthetic expectations of consumers might be relevant here. Driven by the increased meat consumption and change in dietary patterns in the post-war era, the aesthetic and sensory profile of AP products are increasingly judged in their proximity to animal meat.

This is a contrast with the older culinary traditions that had the appreciation of *mitate* which can be translated as "resemblance" or "mimicry". *Mitate* is one of the foundational aesthetic elements in many Japanese cultural practices from architecture to cuisines. In terms of the culinary use of *mitate*, Buddhist *shojin* cuisine has extensive use of it in the form of "*modoki*" (resemblance) dishes (Ueda 2017). For instance, yamaimo potato, seaweed, and tofu are used to make "*shojin* eel"; *ganmodoki* is made from tofu but to mimic "*gan*" (wild goose); mushroom was used as fake abalone. But these modoki cuisines were appreciated for their *mitate* aesthetics. Rather than a mimicry of a "true" thing, *mitate*'s value is in its creation of "elegant confusion" (Mostow, 1996: p. 17). However, such aesthetics does not shape the emergent AP market.

To conclude, as in the Euro-American cases, many ethical promises are being conjured in the Japanese AP market which merits further empirical investigation as to their delivery. We have also noted the differences such as the weaker animal welfare appeal in Japan. Whether this is due to a lower awareness of Japanese consumer needs to be further analysed as our analysis focused more on consumer-facing

appeals than what the existing literature has tended to analyse investor-facing rhetoric by the startups who may not yet have market-ready products. These uniqueness needs to be further investigated as the difference might also involve the difference in terms of target audiences (the investor-facing vs. consumer-facing which this paper has focused).

This paper also started to analyse the industry structure and pointed out the exclusion of traditional foods from the category of the AP market and how the AP players emphasise the technological innovation of their products. However, what is understood to be innovative is socially constructed, often privileging the developments in modern scientific disciplines and those that are capital-intensive and monetizable. This myopic construction of novelty via modern technoscience obscures the existing crafts and knowledge such as those in *modoki* and other *mitate* foods. Furthermore, the promissory narratives of the emergent AP industry also reify and normalize a particular kind of aesthetic valuation of plant-based products that are based on their proximity to animal meat's tastes and texture. The exclusion of traditional AP products from the future imaginaries of sustainable and healthful food systems risks further marginalizing the small and medium producers of these foods.

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