

What is the beef with cultivated meat?

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Early View publication date: 2 September 2024

DOI: <http://dx.doi.org/10.5324/eip.v18i2.5099>



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Artificially cultivated meat may have environmental benefits and harm-reductive capabilities, making it crucial to establishing ethical food production practices. However, we argue that salient factors make producing and consuming artificially cultivated meat morally problematic. We detail some of these factors and highlight their roots in different ethical traditions. These factors present serious challenges to the moral permissibility of its production and consumption. We conclude that artificially cultivated meat is unlikely to be the best solution to today's unethical food production practices.

Keywords: cultivated meat, lab-grown meat, vegetarianism, animal rights, ethics

Introduction

Rapid technological advancements in cultivated meat production have raised hopes that lab-grown meat could soon be a viable alternative for the average consumer.¹ It is easy to see why meat cultivation technologies may appear crucial to establishing more ethical food production practices.² As cultivated meat production develops, it could become a more environmentally friendly option than traditional meat production due to its lower greenhouse gas emissions and reduced reliance on land and water.³ However, perhaps the most significant benefit of cultivated meat is not its environmental impact but its potential to reduce or even eliminate the animal suffering inherent in conventional meat production practices (cf., Heidemann, Molento, Reis, & Phillips, 2020).⁴ Conservative estimates suggest that an average of 70 billion animals are killed for consumption every year to be made into food, clothes, and other types of products.⁵ Before they are killed, many of those animals endure lives that do not seem worth living. They are crammed into small spaces, subject to forced breeding, and slaughtered in ways that cause a significant amount of stress and suffering. The horrors of the modern meat industry make it tempting to look upon cultivated meat as an ethically benign alternative, but we shall argue that this is not so. There are ethically relevant considerations that provide a strong case against the production and consumption of cultivated meat.

After some brief stage setting, we delve into arguments grounded in specific ethical traditions: consequentialism, virtue ethics, and deontology. We explore the consequences of producing artificial meat, whether an ideal moral person would enjoy consuming such meat, and the intrinsic moral qualities of its production and

consumption. Having shown that weighty ethical considerations speak against cultivated meat, we move on to discuss the issue of *moralism*. More specifically, we address the risk that some of the arguments we have developed—particularly those to do with the symbolic value of producing and consuming cultivated meat—overgeneralize to practices that are not morally impermissible. We argue that the moralism worry can be met and conclude that cultivated meat has ethical downsides undermining its status as a possible solution to the food industry's current problems.

The beef with cultivated meat

The question is whether producing and consuming cultivated meat is morally benign or whether there are factors that make these practices ethically objectionable. We will argue that specific factors raise concerns regarding the moral permissibility of the production and consumption of cultivated meat. Our arguments proceed from the assumption that non-human animal lives matter and that veganism is ethically preferable to omnivorism. Furthermore, while there are interesting conversations to be had about other cultivated animal products, like artificial dairy and eggs, our arguments will not be applied to them except in passing.⁶ To our minds, cultivated meat provides the clearest example of the kind of practice that becomes ethically fraught because of its direct association with living bodies and forms of life. While many of our arguments may apply to these other products, artificial dairy and eggs raise nuances that distract from our main points.

Before we get into the details of those points, we should also note and set aside some moral complications involving artificial meat's technological aspects. The production of cultivated meat typically proceeds by growing animal cells in a bioreactor using existing stem cells harvested from animals. The animal cells used as a basis for meat cultivation could be taken from living animals, slaughtered animals, or animals that have died from natural causes, disease, or accidents. For the sake of argument, we will assume that the animal cells used to cultivate meat will be harvested from animals that have not been slaughtered or otherwise exploited by the meat industry. We shall also make similar assumptions for the other ingredients and growth factors required for meat cultivation, though we admit that this does not always reflect how things stand.

The growth factor most commonly used in meat cultivation is *Fetal Bovine Serum* (hereafter referred to as "FBS"), a blood product taken by slaughter from the fetuses of force-bred cattle. If FBS turns out to be necessary for cultivating meat at a mass scale, then such meat cannot hope to be an "animal-friendly" product. Efforts are currently underway by producers of cultivated meat to find morally benign substitutes for FBS.⁷ Unfortunately, the most promising alternatives have proven so expensive that they threaten cultivated meat as an economically feasible option for the average consumer.⁸ We will bracket these worries and assume that vegan and economically feasible alternatives to FBS will eventually be widely used. This is not to assume that all methods for cultivating meat will be morally benign. Indeed, our suggestion is the opposite: regardless of how meat cells are cultivated in a bioreactor, producing and consuming lab-grown meat will *not* be morally benign. The first argument we wish to focus on is a consequentialist one, stating that the effects of prioritizing the technological advancement and production of cultivated meat contribute to making these practices morally bad.

Consequentialist considerations

There are roughly 1 billion cows in the world. If the conventional meat industry gave way to cultivated meat production, the bovine population would dwindle over a few generations. Because the lives of many cows are not worth living, perhaps we should welcome their extinction. A world with less suffering than ours is better, all else being equal. However, the lives of many cows *could* be worth living, even if most end up on the plate. Rather than eliminating the bovine population, perhaps we should reduce it and provide all cows with a better quality of life. This could be done by giving them larger outdoor habitats, changing our existing breeding practices, slaughtering them in ways that do not cause too much stress and suffering, and so on. The point is that from a consequentialist perspective, where what matters is just the total amount of happiness and pain, it is unclear whether a world without a conventional meat industry is better overall.⁹

While this argument against cultivated meat and veganism presents an important challenge, we shall set it aside in what follows and assume that veganism is morally preferable to omnivorism. The question we will focus on is whether there are factors that make the production and consumption of cultivated meat morally worse than veganism. The standard defense of cultivated meat production states that by making artificial meat readily available in supermarkets and restaurants, people can eat flesh without supporting the conventional meat industry. If a sufficient number of people switch to cultivated meat, there may be no need for animal farms and the suffering that currently results from conventional meat production.

What is more, eating the flesh of animals dead from accidental causes is not morally wrong from a consequentialist perspective since it does not contribute to a world with less happiness in relation to suffering (Singer, 2011). We might think that eating cultivated meat is roughly equivalent to, or perhaps even better, than eating animals that died in this way.

We believe that these defenses of the production and consumption of cultivated meat are weaker than commonly supposed, at least given the assumption that veganism is morally preferable to omnivorism. Several worries have already been raised in the literature to illustrate this point. For instance, there are rational doubts about whether omnivores prefer cultivated meat to the “real deal” as many may feel squeamish about its artificial nature (Alvaro, 2019).¹⁰ There is also the risk that cultivated meat will not determinately change the present meat industry for the better but provide conventional meat production companies with increased competition. This increased competition may force the relevant companies to employ practices that cause even more stress and suffering on behalf of animals (Hale, 2022).¹¹

We suggest that the biggest worry with cultivated meat is not related to these concerns but the cost of its production. The resources currently pooled into developing feasible alternatives to conventional meat are large. By comparison, the expected benefits of this development are vanishingly small, at least when compared to a scenario where we switch to a standard vegan diet. Presumably, the main advantage of conventional meat production involves promoting whatever gustatory pleasures are exclusively associated with meat consumption. The resources currently dedicated to developing cultivated meat and vegan alternatives to FBS could be employed more effectively elsewhere to address pressing ethical

concerns in the present. We have in mind global issues such as hunger, sickness, inequality, climate change, widespread poverty, and lack of education. If we adopt the perspective of a utility maximizer aiming to produce the best overall consequences, then endeavors to develop economically and environmentally feasible alternatives to conventional meat start to appear morally problematic.

The Good Food Institute (GFI) reports that cultivated meat producers received more than 300 million USD in 2020 and that the number of producers grew by 43% in the same year. We expect both numbers to grow in the upcoming decades as we continue to see technological advancements in cultivated meat production. It seems fair to suggest that if cultivated meat producers are to find economically feasible alternatives to FBS and make cultivated meat available to consumers globally, the investment must grow exponentially.

The meat industry is estimated to be worth roughly 1 200 billion USD.¹² If cultivated meat producers aim to encroach on this market to any significant degree, then billions and billions of dollars would have to be invested in the cultivated meat industry in the coming decades. Although these funds may not be sufficient to solve the aforementioned global issues, they could significantly alleviate them. Simple, low-cost solutions can help mitigate human suffering, such as distributing mosquito nets to prevent malaria. These nets cost around USD 5 each, and the *Against Malaria Foundation* (a non-profit organization that provides them) has an average cost-effectiveness of USD 5,500 per life saved. This is just one example of a highly efficient and inexpensive approach currently available to us.

The obvious rejoinder is that most people are unwilling or unable to switch to a traditional vegan diet and that it is, therefore, necessary to seek alternatives to conventional meat production. In other words, rather than comparing a world where we switch to a vegan diet with a world where we eat cultivated meat, the comparison should be between a world where we consume cultivated meat and a world where we continue to consume the conventional variety. There is some truth to this. However, instead of investing large amounts of resources in developing cultivated meat, educating people about the benefits of veganism and establishing material conditions that make such a diet feasible for a larger population could be more effective. Our current beliefs, attitudes, and opportunities are malleable, so we could spend more resources to make people more willing and able to switch to a traditional vegan diet. Indeed, some of the means to address the world's broader problems, such as inequality, climate change, poverty, lack of education, and so on, are precisely the means required to make people willing and able to switch diets in this way. The suggestion that such measures should be sacrificed in favor of the gustatory pleasures of meat appears weak from a consequentialist perspective. Indeed, in our view, it remains quite weak even when we move beyond this perspective and consider some of the other moral factors relevant to producing and consuming cultivated meat.¹³

Deontological and Virtue Ethical Considerations

The most straightforward deontological argument against conventional meat is that raising animals and killing them for consumption constitutes a violation of their moral rights as living and sentient creatures. However, at first glance, this kind of consideration may seem irrelevant to issues surrounding the consumption of animal flesh as such. The *Inefficacy Objection* contends that although there are reasons to avoid causing suffering to animals, our buying and eating flesh does not cause the

animal we are eating to be killed. The average consumer will buy meat from animals that have already been killed as opposed to, say, preordering the flesh of living animals. If this argument is strong enough to justify the consumption of conventional meat, then it also justifies eating cultivated meat. Our view, which we hope to explore in this section, is that there are other considerations, similar to the one just mentioned, speaking against the consumption of flesh *as such*. We wish to focus on the suggestion that aside from not being victims of suffering and slaughter, animals also have a moral right to *bodily integrity*.

Philosophers have recently invoked the right to bodily integrity in discussions about a variety of phenomena, including revenge porn and deep fakes, which involve our bodies being depicted in ways with which we would disagree.¹⁴ Unless prior consent is acquired, it is morally bad to spread nude photographs of partners on the internet, to create sex dolls with the appearance of actual people, and to produce fake explicit videos where individuals are depicted in ways that may cause them embarrassment and emotional distress. These things violate the right of bodily integrity on the part of the victims. The idea we would like to consider is that using the tissue of animals as blueprints for growing cultivated meat violates their bodily integrity as well, but in a different way. Indeed, this general kind of response has already been mentioned in the literature, where it occasionally takes on a virtue ethical perspective.¹⁵

To take on a virtue ethical perspective is to consider the actions that a good person would typically perform and compare them to the behaviors that an intemperate person is prone to exhibit. According to Aristotle, the intemperate person indulges in “slavish or brutish” pleasures and consuming whatever readily available food is a sign of intemperance.¹⁶ Conversely, a virtuous individual eats healthy food in moderation “as long as they are not incompatible with health or vigor, contrary with what is noble, or beyond his means.”¹⁷ The question is whether consuming lab-grown meat is noble and affordable. Alvaro (2019) argues that virtue ethics would not support a preference for cultivated meat because a vegan diet is generally healthier than a more varied diet.¹⁸ However, other factors, that have nothing to do with physical health, indicate that the ideally moral person would not enjoy eating cultivated meat.

An important point that is often overlooked is that seeking satisfaction from cultivated meat could diminish one’s admirability inasmuch as it constitutes symbolic support of cruel practices. Shafer-Landau (1994) makes a similar point by arguing that seeking and deriving satisfaction from products known to result from cruel practices diminishes one’s admirability. As he puts it, “One must refuse (even symbolic) support of essentially cruel practices if a comparably costly alternative that is not tied to essentially cruel practices is readily available” (p. 95). This aligns with virtue ethicists, who emphasize the dispositional qualities of an agent and suggest that the disposition or motivation of the agent determines the goodness of an act.¹⁹ Placing oneself so close to a symbol of cruel practice can in itself thus be wrongful.

Compare the virtue ethical response to the Inefficacy Objection to a deontological one developed by Hereth (2016). He states that “if some wrong occurred, then it is wrong (other things being equal) to celebrate, participate in, or benefit from it” (ibid: 43). Roughly, the idea is that ordering a Bolognese at a restaurant or buying ribs at Safeway is morally wrong because one would be participating in and contributing to a general practice that is contingent on the violation of the moral rights of animals. If this is on the right lines, we can see how it also serves as a general argument against cultivated meat. Of course, the cultivation and consumption of lab-grown meat is not

contingent on some moral wrong having occurred. Cultivated meat requires using cells harvested from animals, but they could just as well have originated from those that die by accident. In light of this, it may seem unclear why consuming flesh as such is equivalent to celebrating or participating in a morally wrongful practice.

Several philosophers have argued that there is a sense in which eating meat, whether it is cultivated or harvested from an animal that died accidentally, would be to celebrate or honor their death. Consider the argument made by Fischer and Ozturk (2017) that if it is morally problematic to have a lampshade replicating human skin and flesh, then eating cultivated meat is also ethically problematic. The wrongness of owning such a lampshade is due to “a failure of reverence – a kind of callousness, a thought-lessness about how human bodies are symbols for the lives we live in them” (ibid: 490). Following G.E. Moore (1903), they also argue that it is bad to admire something bad and that the lampshade is a proxy for admiring something bad. Enjoying a proxy is a way of enjoying the real deal. Like the lampshade,

fake meat is supposed to resemble the real thing. Indeed, people consume fake meat precisely because it does resemble the real thing, and they value those particular gustatory qualities. What is more, as there are excellent moral reasons not to kill and mutilate the bodies of human beings, there are excellent—and entirely familiar—moral reasons not to kill and mutilate the bodies of animals. [...] Finally, as in the case of [the lampshade], no morally-important being is harmed by fake meat, and there is no straight-forward Kantian critique to level against it (p. 491-492).

While deontological arguments against meat eating often focus on the moral rights that animals have to avoid suffering and death, as we have just seen, there are other factors rooted in the *symbolic value* of such a practice. Such factors appear relevant regardless of whether we consider ordinary meat or its cultivated counterpart. Cultivated meat is made of cells comprising something like a muscle that has the function of circulating blood and helping living beings move about the world. Muscles, whether cultivated or not, could be understood as symbols for the lives we live with their aid. Consuming cultivated meat without regard for this symbolic value also constitutes a failure of reverence of the sort mentioned by Fischer & Ozturk.²⁰ Furthermore, it seems plausible to suggest that a tendency not to show this kind of reverence for the symbolic value of flesh is also a significant moral vice that we ought to overcome.²¹

The objection from moralism

The objections to cultivated meat based on virtue ethics and deontology face a common concern, which can be expressed as the objection from moralism. We have suggested that producing and consuming cultivated meat has negative symbolic value, violates animal rights and bodily integrity, and is something that the virtuous person would avoid. However, there is a worry that such arguments may be too broad and extend to behaviors rarely considered morally problematic or impermissible. There are ethically innocent practices that we engage in during our everyday lives that might be described, using the line of reasoning just employed, as being relevantly similar to paradigmatically impermissible actions taken against moral right holders.

Consider video games and the way that some of them give players the means to simulate acts of extreme violence against other people. For example, the *Grand*

Theft Auto series is famous for creating open worlds in which players, when not engaged in any story-related missions, can find ways of murdering innocents by gunning them down or hitting them with stolen vehicles. Such actions would be morally impermissible if they were performed to living persons in everyday life, and while doing them within simulated worlds is morally better than actually doing them, the argument could be made that an ideal moral person would not find enjoyment in either context. A person endowed with all the traits and proclivities that are morally admirable and none that are ethically contemptible would not be entertained by simulated acts of extreme violence.²²

Perhaps there are similarities between the example just mentioned and the consumption of cultivated meat. Consuming cultivated meat is, in some sense, mimicking or simulating the eating of real flesh and body parts. While eating lab-grown meat is certainly morally better than eating naturally produced animal meat, an ideally moral person would also not find enjoyment in facsimiles of flesh and body parts. A person with all the traits and proclivities we take to be morally admirable and none we take to be ethically contemptible would shy away from eating something intended to approximate the remains of a once-living creature. However, the point is that while a morally ideal person would not enjoy violent video games, it is ethically permissible to enjoy such games. The contrary suggestion seems overly demanding, especially given how many examples of this sort can be found in our everyday lives: Is it morally impermissible to enjoy a play, film, song, or book with violent themes because they present and are in some sense symbolic of circumstances that would be morally impermissible in real life?²³ Is it ethically impermissible to engage in consensual sexual practices that may appear to mimic acts of sexual violence?

Here are the outlines of a dilemma: On the one hand, there is a risk that our argument becomes too demanding by pronouncing apparent examples of innocent practices morally impermissible by virtue of their symbolic connection to paradigmatically wrongful actions. On the other hand, our argument risks being toothless if it suggests that these innocent practices are only made morally bad in the *pro-tanto* sense due to the various types of considerations we have just been discussing. We must undermine the analogy between consuming cultivated meat and other innocent ways of mimicking morally impermissible practices to escape the dilemma. One way of doing so is to suggest that eating cultivated meat is much closer to eating conventional meat than murdering people in video games is to killing them in real life. In other words, we would argue that the symbolic value of a practice is affected by how abstract its connection is to paradigmatically wrongful actions.

Spreading nude photographs of partners on the internet is morally worse than spreading crudely made drawings of them. Similarly, consider the difference between highly realistic virtual reality games and the stylized 8-bit adventures from decades ago. Trampling turtles in an old Super Mario game seems significantly different from the (much anticipated) turtle torture simulators of the near future. If this is on the right lines, then that seems like bad news for the production and consumption of cultivated meat, which is produced in the hopes of being *indistinguishable* from real flesh. This line of thought is also helpful in explaining why it is morally permissible to enjoy oat milk. Oat milk is quite different from cow milk in taste and texture. However, certain vegan products such as the Beyond Burger and Impossible Burger could be argued to be morally problematic since they

come very close to replicating the taste and texture of meat. Nevertheless, these products are not nearly as successful as cultivated meat in their mimicry and are thus morally permissible. This reasoning establishes a spectrum, with lab-grown meat situated distantly from oat milk. In between, we encounter products like the Beyond Burger. Products at one end of the spectrum are impermissible to consume, while those at the other are permissible. Drawing a precise line between permissible and impermissible products may be impossible. For instance, it may be impossible to determine the permissibility of consuming lab-grown cow's milk or eggs, positioned between soy-based alternatives mimicking animal meat and lab-grown meat.²⁴ However, what can certainly be emphasized is the importance of erring on the side of caution and refraining from consuming products for which we cannot ascertain ethical permissibility.

Carnivore, omnivore, or herbivore?

We have focused on the factors counting against the production and consumption of cultivated meat, but we have said very little about what we ought to do in light of those factors. Unsurprisingly, the appropriate course of action depends on one's current dietary habits. It is undoubtedly true that consuming cultivated meat is preferable to consuming factory-farmed meat. However, for adherents of veganism, there are no apparent advantages to consuming cultivated meat. As a result, if there are compelling reasons to adopt a vegan diet, there are no persuasive grounds to pursue the development of cultivated meat. Yet, it may be argued that even if we should adopt a vegan diet, most people are unable or unwilling to do so. This group of individuals may find it challenging to abstain from meat consumption, and introducing cultivated meat could help them do less harm, even if it falls short of meeting ethical standards. While this argument may hold some merit, examining whether the resources allocated to developing cultivated meat could be more efficiently utilized to persuade people of the benefits of a conventional vegan diet is necessary. The production of cultivated meat may become a profitable business endeavor, and it seems likely that the motivation behind it is mainly commercial. Any appeal to ethical considerations to motivate the development of artificial meat cultivation is a red herring. As we have shown, there are many ethical disadvantages of consuming cultivated meat, and the future of cultivated meat should not be seen as an ethical solution to the food industry's problems. Furthermore, relying solely on technological advancement may impede our development as moral agents. True progress in our moral evolution comes from actively addressing and overcoming our ethical shortcomings. The possibility of cultivating meat in laboratories should not serve as an excuse for inaction; instead of passively waiting for technological solutions, we should proactively make ethical commitments to address the environmental, social, and animal welfare concerns inherent in conventional meat production.

Acknowledgements

We thank two anonymous reviewers whose insightful comments was of much help. We are also grateful to Eric Brandstedt and Mattias Gunnemyr, who provided helpful feedback on an early version of this paper. Henrik Andersson is also grateful to the Swedish Research Council for their financial support through Grant no 2018-

06698. The authors contributed equally to this work. Their names are listed alphabetically.

Notes

¹ For an overview of cultivated meat technology, we recommend the “The science of cultivated meat” by The Good Food Institute: <https://gfi.org/science/the-science-of-cultivated-meat/>

² According to Savulescu and Schaefer: “Artificial meat stops cruelty to animals, is better for the environment, could be safer and more efficient, and even healthier. We have a moral obligation to support this kind of research. It gets the ethical two thumbs up.” <http://blog.practicaethics.ox.ac.uk/2013/08/press-release-ethical-meat/7720593492/>

³ We use the expression “cultivated meat” and “lab-grown meat” to refer to any product grown from animal cells in a bioreactor.

⁴ It must also be stressed that the potential environmental benefits may be exaggerated. See Risner, Derrick, et al. (MS) for some preliminary findings.

⁵ According to The Food and Agriculture Organization of the United Nations, 73 billion cows, chickens, pigs, and sheep were slaughtered in 2020. www.fao.org

⁶ For an interesting discussion on lab-produced cow’s milk, see Milburn (2018).

⁷ For a helpful overview, see Van der Valk, Jan, et al. (2018).

⁸ Mosa Meat has successfully cultivated meat without FBS (Messmer, Klevernic, Furquim, *et al.*, 2022). However, their process appears too costly to be a feasible option. See Specht (2020) for a general analysis of the costs of producing cultivated meat. However, things may have changed in this regard as the company GOOD Meat recently became the first producer in the world to be approved to use serum-free cell growth media in their cultivated products for commercial use. See the Good Meat press release.

⁹ Of course, not all forms of consequentialism are utilitarian in the sense of being exclusively concerned with promoting happiness and reducing suffering, nor are all forms of utilitarianism only concerned with the total amount of happiness and suffering in the world. Nevertheless, if we agree with utilitarianism that happiness is among the morally good things and that how our practices affect the total amount of happiness and suffering in the world is significant to our ethical decision-making, then it is no longer obvious that eliminating the bovine cattle population is the morally best thing we could do. Of course, this line of reasoning applies to cows and the animal industries more generally. The morally best thing might be that we could have our cows and eat them, too. For more on permissive attitudes toward meat eating by utilitarians, see, e.g., Tännsjö (2016).

¹⁰ For empirical data regarding people’s current attitudes toward cultivated meat, see Wilks, Phillips, Fielding, & Hornsey (2019) and Rosenfeld & Tomiyama (2022).

¹¹ See Huemer (2018: 57) for an objection to this line of thought. There is also the risk that if eating lab-grown meat becomes commonplace, people with diets that do not include a lot of meat may build up a desire for the “real deal.” See, e.g., Sinclair (2016), who argues that cultivated meat will strengthen the association between animals and edibility in an unwanted way. One way to combat this problem is perhaps to make lab-grown meat sufficiently different from naturally grown meat that while it shares many of the same qualities that draw people

toward the latter, lab-grown meat will have a different character. Consider milk substitutes based on grains, which share many of the same qualities of naturally produced milk but taste different enough that, once you get used to them, naturally produced milk will start to seem less tasty partly because of its psychological association with the animal industry.

¹² <https://www.statista.com/statistics/502286/global-meat-and-seafood-market-value/>

¹³ Furthermore, if we develop cultivated meat for mass production, we may question whether human beings should be first in line to get it. Humans can thrive on a vegan diet, but some of our pets, such as cats, do not have the option to switch. They are obligate carnivores. Therefore, the initial beneficiaries of cultivated meat should be our pets. This approach minimizes the suffering and killing of animals. For a similar argument related to roadkill, see Abbate (2019)

¹⁴ See e.g., Garcia, A. (2023).

¹⁵ Similar objections can be found in other areas of ethics as well. For example, in climate ethics. Nefsky, J. (2019). For a general response against the objection when raised against veganism we recommend McMullen, S., & Halteman, M. C. (2019).

¹⁶ See Alvaro, C. (2019) and Halwani, R. (2020) for arguments of this kind.

¹⁷ Aristotle, *Nichomachean Ethics*.

¹⁸ See also Alvaro 2022, in which a virtuous ethical view on the matter is formulated in the following manner: “[A] virtuous person may consider that optimal health does not require the consumption of any animal products. Indeed, some argue that it is best to avoid consuming meat, that humans were biologically selected to eat plants, that humans can thrive without eating meat, that meat must be consumed in moderation because it is not healthful in abundance; that well-planned, plant-based, vegan diets are optimal; that plant-based diets are more sustainable and overall better for the environment; that taste can be adjusted; and that animal suffering can be avoided without sacrificing important human values. If consumers are committed to virtue-ethical principles, they would likely also internalize temperance and justice by choosing options reflecting these virtues and thereby choosing satisfactory alternatives. As there already are satisfactory alternatives — plant-based, vegan diets, or forms of agriculture that may include meager amounts of meat — it is logical to conclude that virtue ethics would favor the option that does not require financial burden and strategies to convince people to abandon what they see as perfect and natural (factory farming) to embrace something unnatural made in the lab that they do not want.”

¹⁹ E.g., Slote 2001.

²⁰ In relation to the symbolism issue, it has also been argued that the production of cultivated meat may not only express support for a speciesism society but for a capitalist society as well. See Miller (2012).

²¹ The weight of these deontological and virtue-ethical considerations also points to another often-overlooked factor that involves our moral progress. If we put our faith in technological advancements and refuse to change our proclivities, we will likely miss opportunities to develop as moral agents. In general, virtue ethicists are correct in not putting too much faith in technological advancement to avoid moral wrongdoings. Doing so may lead us to ignore certain avenues to becoming better people. This echoes the sentiments recently expressed by Ben Bramble (2017) when he states that moral crises “like factory farming and climate change

should be seen not only as major threats to others, but as opportunities to address or deal with troubling parts of ourselves.”

²² This seems reasonable even if we departed from traditional virtue-ethical thinking and judged that playing such games is morally permissible.

²³ This issue merits a much more nuanced take. We might argue that certain works of fiction depicting violence can help us develop as moral agents, while others do not. The intention and perhaps the quality of the fiction may be relevant when determining whether it is morally impermissible to enjoy the work of art. Nevertheless, we hope that our remarks highlight the possible distinction between the permissibility of taking pleasure in fiction and the permissibility of taking pleasure in the real thing. For a helpful discussion on the role of fiction in moral philosophy, see, e.g., Gåvertsson (2018).

²⁴ Here, we disagree with Milburn (2018), who argues that lab-produced cow’s milk should be welcomed.

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