

Inference to the Best Solution: The Case for Synthetic Meat

Eric Bodlak, Department of Philosophy

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Thesis

The development and marketing of synthetic meat is the best solution to the problems associated with conventional meat production, according to comprehensive analysis based on the criteria for “inference to the best solution.”

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Argument Summary

1. Conventional meat production has significant energetic, environmental, and economic costs and has negative effects on human and animal welfare.
2. All else being equal, it is desirable to reduce these costs and negative effects.
3. The three candidate solutions for reducing the costs and negative effects of conventional meat production are meat industrial reform, advocated vegetarianism, and synthetic meat technology.
4. We should prioritize the most promising solution to a problem, based on comprehensive analysis.
5. Synthetic meat technology is the most promising of these solutions, based on comprehensive analysis.
6. Therefore, we should prioritize synthetic meat technology as a solution to the costs and negative effects of conventional meat production.

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Problem Statement

Conventional meat production has significant energetic, environmental, and economic costs and has negative effects on human and animal welfare:

- 65 billion land animals and 900 billion sea creatures are killed each year for food.
- Factory farming leads to increased rates of animal injury, disease, and death.
- Workers in the meat industry experience high rates of injury and illness and report low levels of job satisfaction.
- Meat-borne diseases lead to the hospitalization of thousands per year, and antibiotic-laden livestock are a breeding ground for new diseases.
- Meat consumption has been linked to a number of health problems.
- Meat production requires more land, water, and energy than the production of crops.
- Livestock are one of the largest producers of greenhouse gases, and their waste contributes to water pollution.

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Reasons for Optimism

- Most people believe that animals deserve at least some protection from harm, and the majority are very or somewhat concerned about the treatment of livestock.
- A growing number of people are willing to pay more for humanely raised meat, and others are reducing their levels of meat consumption.

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Possible Solutions

- **Meat industrial reform**—Modification of the current system of meat production to minimize negative impacts.
- **Advocated vegetarianism**—A widespread transition to vegetarianism brought about by a shift in public opinion or democratic legislation.
- **Synthetic meat technology**—Meat or meat analogs not produced by animal slaughter, including cultured meat and plant-based meat substitutes.

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Criteria for Evaluation

Ideally, solutions would be quasi-quantitatively compared within an expected-utility framework. Lacking the kind of rigorous study needed to effectively ground expected-utility calculations, a set of qualitative criteria for “inference to the best solution” is recommended:

- **Depth**—The solution more completely produces the desired effects than competing solutions.
- **Breadth**—The solution more broadly produces the range and variety of desired effects than competing solutions.
- **Consonance**—The solution is more closely allied with established facts than competing solutions.
- **Consistency**—The solution conflicts with fewer established facts than competing solutions.
- **Simplicity**—The solution relies on the implementation of fewer independent principles and actions than competing solutions.

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Solution Assessment

Synthetic meat outperforms its competitors according to the criteria for inference to the best solution:

- Meat industrial reform falters because it is unable to offer sufficient depth and breadth.
- The failure of advocated vegetarianism lies mostly in its lack of consonance and consistency with prevailing attitudes and dietary trends.
- Synthetic meat is [at least] competitive in the areas where the others are not, and it is also probably the simplest, due to its narrow focus and reliance on repeatable processes and market forces.

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Conclusions

Conclusion: If the premises of the overarching argument are true, then it follows that we should prioritize synthetic meat technology as a solution to the costs and adverse effects of conventional meat production.

Implications: This research provides guidance for those seeking to alleviate the particular problems of conventional meat production and general guidance for those making decisions under uncertainty based on qualitative considerations.

Future Work: A comprehensive quantitative study of the relevant data is needed to ground expected-utility calculations.

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Further Reading

Chewing Over In Vitro Meat by J. Milburn, 2016.
The Ethics of Producing In Vitro Meat by G. O. Schaefer, and Julian Savulescu, 2014.
Putting Meat on the Table by Pew Charitable Trusts, 2008.
Beyond Meat, <https://beyondmeat.com/>
Future Meat Technologies, <https://www.future-meat.com/>
Impossible Foods, <https://impossiblefoods.com/>
Mosa Meat, <https://www.mosameat.com/>