

# Alternative proteins in chef training: how to prepare trainee chefs for future proteins

Findings from a mixed-methods study exploring how UK culinary educators understand, teach, and engage with emerging protein sources

Andrea Zick<sup>1</sup>, Alexandra Hyde<sup>2</sup>, Ximena Schmidt Rivera<sup>3</sup> and Shona Koren Paterson<sup>1</sup>

Affiliation: <sup>1</sup> Chemical Engineering Department, Brunel University of London, <sup>2</sup> Flourish Food Science and <sup>3</sup> Centre for Food Policy, City St George's, University of London

## Introduction

The urgent need for food system sustainability is clear, with huge and innovative opportunities to improve protein-rich food sustainability<sup>1</sup>.

No common definition of “alternative proteins” was found via scoping review. Alternative protein (AP) foods varied by culture and geography and included plant-based, fermentation-derived, fungal/mycoprotein, insect, cultured meat, and underutilised animal meats.

Very limited literature has explored alternative proteins in chef training, confirming the need for an educator-first, empirical approach. Chef educators were surveyed to determine AP teaching practices and identify barriers and opportunities for future teaching.

## Methods

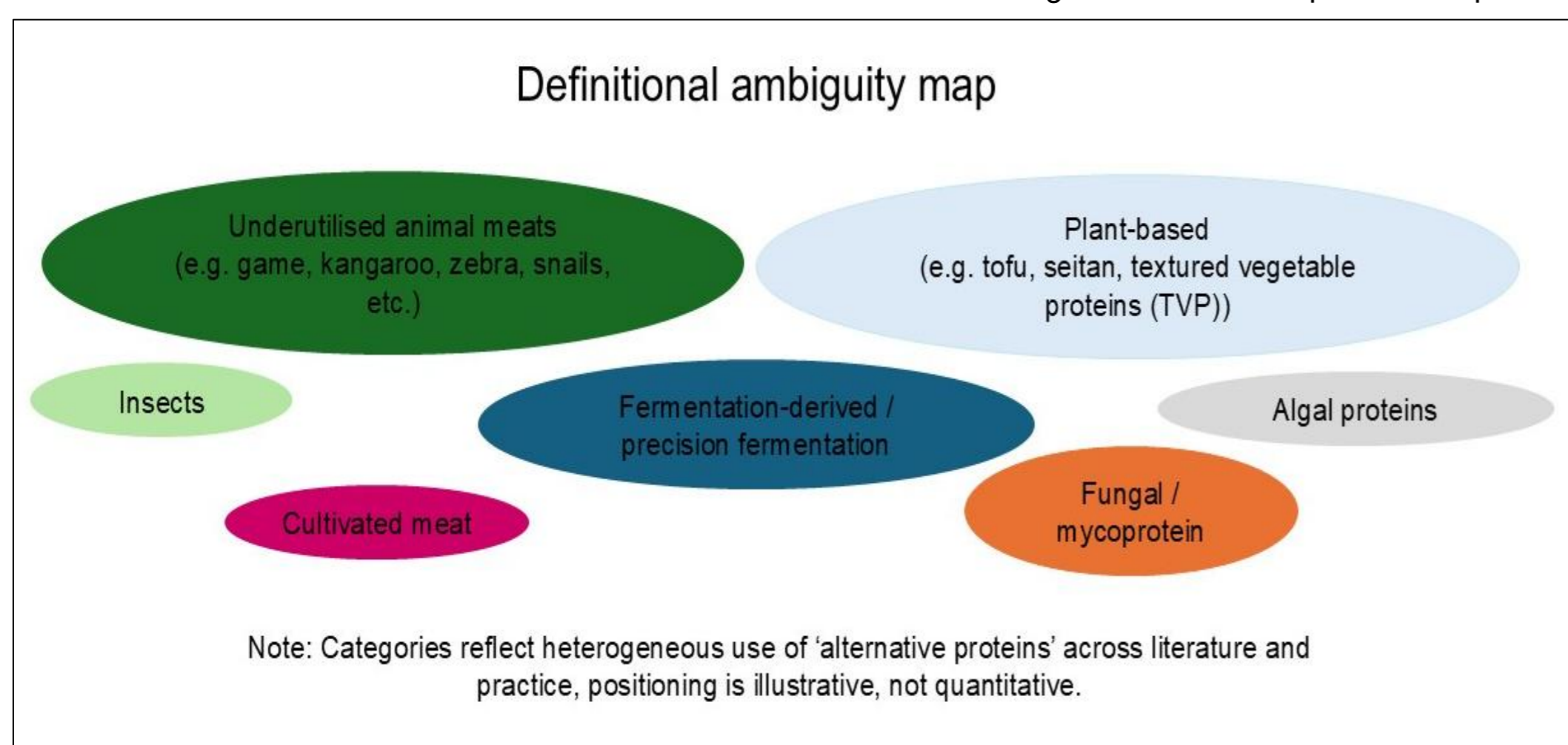
Ethics approval granted: Brunel University 51307-LR-Jan/2026- 54902-2

- Scoping review of AP definitions:** 18 keyword combinations searched in Scopus (150 records → 6 included), PubMed/Elsevier (~77 → 1 included), and structured grey-literature searches; 7 papers finally included.
- Pre-workshop survey to AP in education context:** Educators (n=11) across 8 colleges/training academies; captured teaching context, inclusion of AP categories, and reasons for non-inclusion in training.

## Results

### Scoping review results

Figure 1: Alternative proteins map



- Geographic contextual variation
- No consensus definition of APs
- Sparse research on chefs/educators

## Future work

- Focus groups/workshops with educators: Exploratory sessions across mixed public/private providers to elicit barriers and opportunities from the classroom → sector levels
- AP pilot workshop: Co-designed and tested with current chef students and their educators

**Reference:** <sup>1</sup> Rockström et al. *The Lancet*, Volume 406, Issue 10512 (2025), 1625 - 1700

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Andrea Zick [andrea.zick@brunel.ac.uk](mailto:andrea.zick@brunel.ac.uk)  
 Alexandra Hyde [DrAlex@FlourishFoodScience.co.uk](mailto:DrAlex@FlourishFoodScience.co.uk)  
 Ximena Schmidt Schmidt [Ximena.Schmidt@citystgeorges.ac.uk](mailto:Ximena.Schmidt@citystgeorges.ac.uk)  
 Shona Koren Paterson [ShonaKoren.Paterson@brunel.ac.uk](mailto:ShonaKoren.Paterson@brunel.ac.uk)



### Pre-workshop survey results

- **Context:** Qualifications NVQs/VRQs, City & Guilds, CTH L4, Le Cordon Bleu, BA/MA; teaching loads 6–40 hrs/week, practicals dominating.
- **Inclusion:** Plant-based proteins are most integrated (theory + practical);
  - Frequently mentioned tofu, tempeh, seitan, mycoprotein, fungi, pulses/legumes.
  - Limited exposure to precision fermentation, cultivated meat, underutilised meat, insects, algal proteins, and novel aquaculture.
- **Non-inclusion reasons:** Time; limited curriculum space; product access/cost; allergen/safety; low lecturer confidence; perceived misalignment with current specs.

Table1: Pre-workshop survey summary table

CATEGORY	EXAMPLES	NOTES
Plant-based	Tofu, seitan, textured vegetable protein (TVP)	Most widely recognised by educators
Fungal/Mycoprotein	Quorn, fermented fungi	Moderate familiarity in curricula
Fermentation-derived	Precision-fermented proteins	Rarely included in teaching
Insects	Mealworms, crickets	Low familiarity; high student resistance
Cultivated meat	Lab-grown chicken/beef	Discussed theoretically; not used practically
Underutilised animal meats	Rabbit, wild boar, kangaroo, zebra	Included in some cultural contexts

## Limitations

- Little existing research on chefs or educators, only ~7 relevant papers found.
- 18 keyword search combinations used, but search term bias may still limit database retrieval.
- “Alternative proteins” means different things to different people — shaping how educators responded.
- Education providers differ widely in structure and resources, limiting generalisation.
- Educators’ tight schedules may have constrained the depth of contributions.

## Conclusion

- Educators want to teach AP— but can’t easily do so within current curriculum and resource constraints.
- No shared definition of “alternative proteins” creates confusion and inconsistent teaching.
- Wider change needs collaboration with awarding bodies and industry.
- A co-designed AP teaching module offers a timely path forward.