



Future foods: towards a planet friendly diet for a growing population

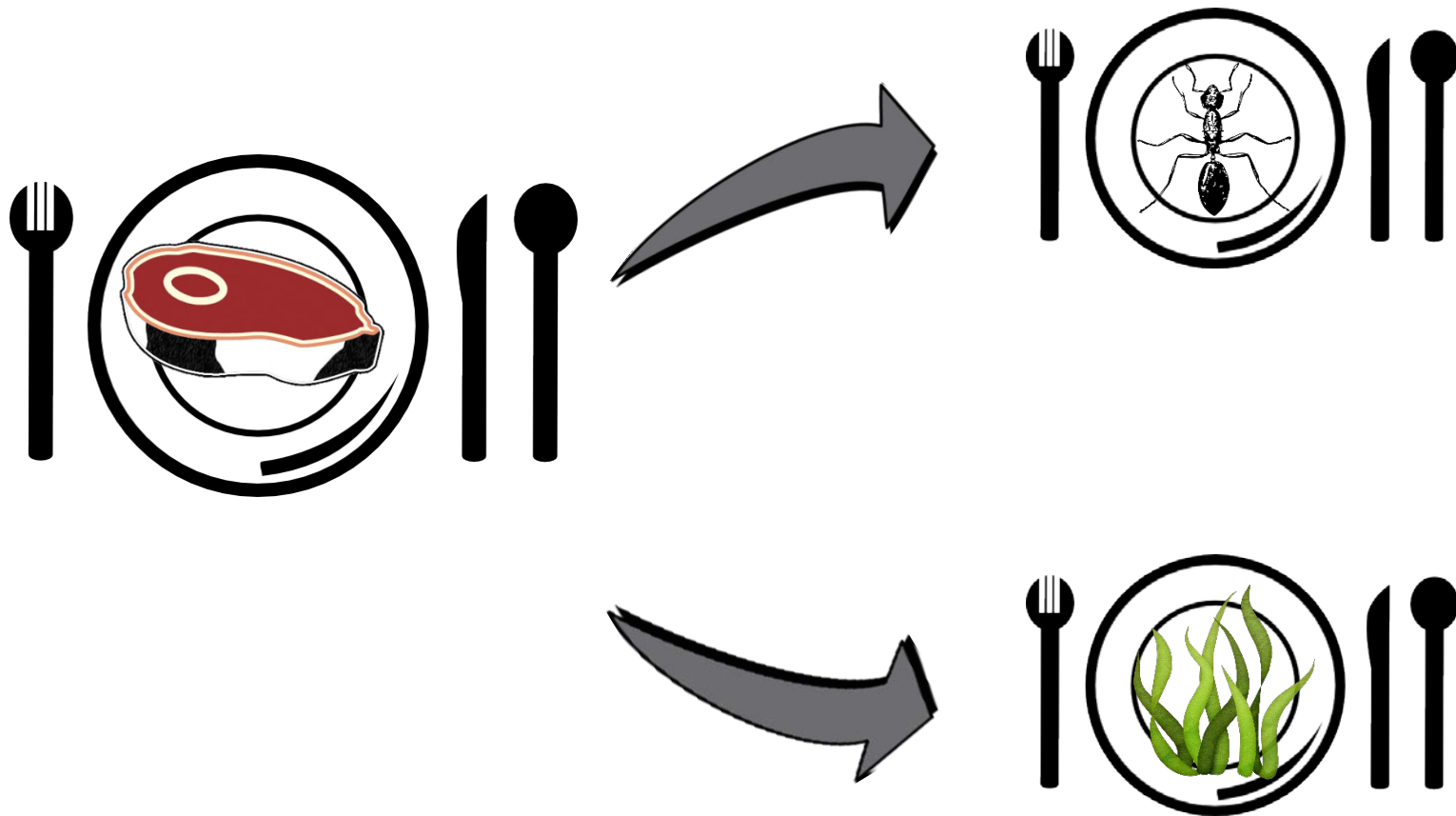
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Reduce diet impact – replacing ASF



Aim

Explore the nutritional and
the environmental performance of future foods
compared to animal products

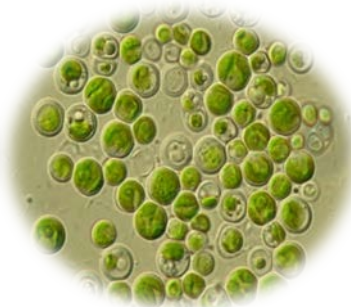
Alternative protein sources

Animal products

Review: what is the environmental impact of these sources?



Insects



Microalgae



Seaweed

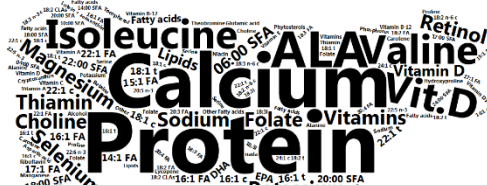


Mycoprotein



Cultured meat

Review: what is their nutritional profile?



Fish and plant also included

Methods

Nutrient composition: Looking for the relevant nutrients

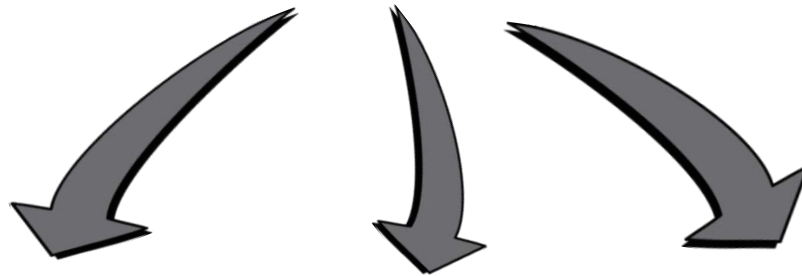
Macronutrients:

- Protein
- 4 essential aa:
Lys, met, thr, trp

Micronutrients:

- Ca, Fe, Zn, I
- vit. B12, vit. D

Environmental impacts: Impact to produce each nutrient

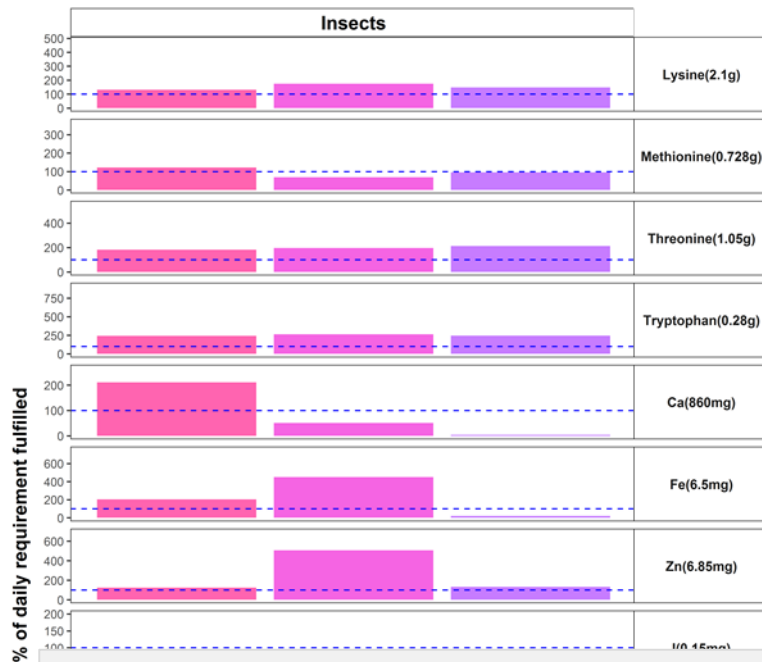


GWP
(kg CO₂ eq)

EU
(MJ)

LU
(m²)

Results – nutritional composition



The nutritional profile between insects species differs a lot

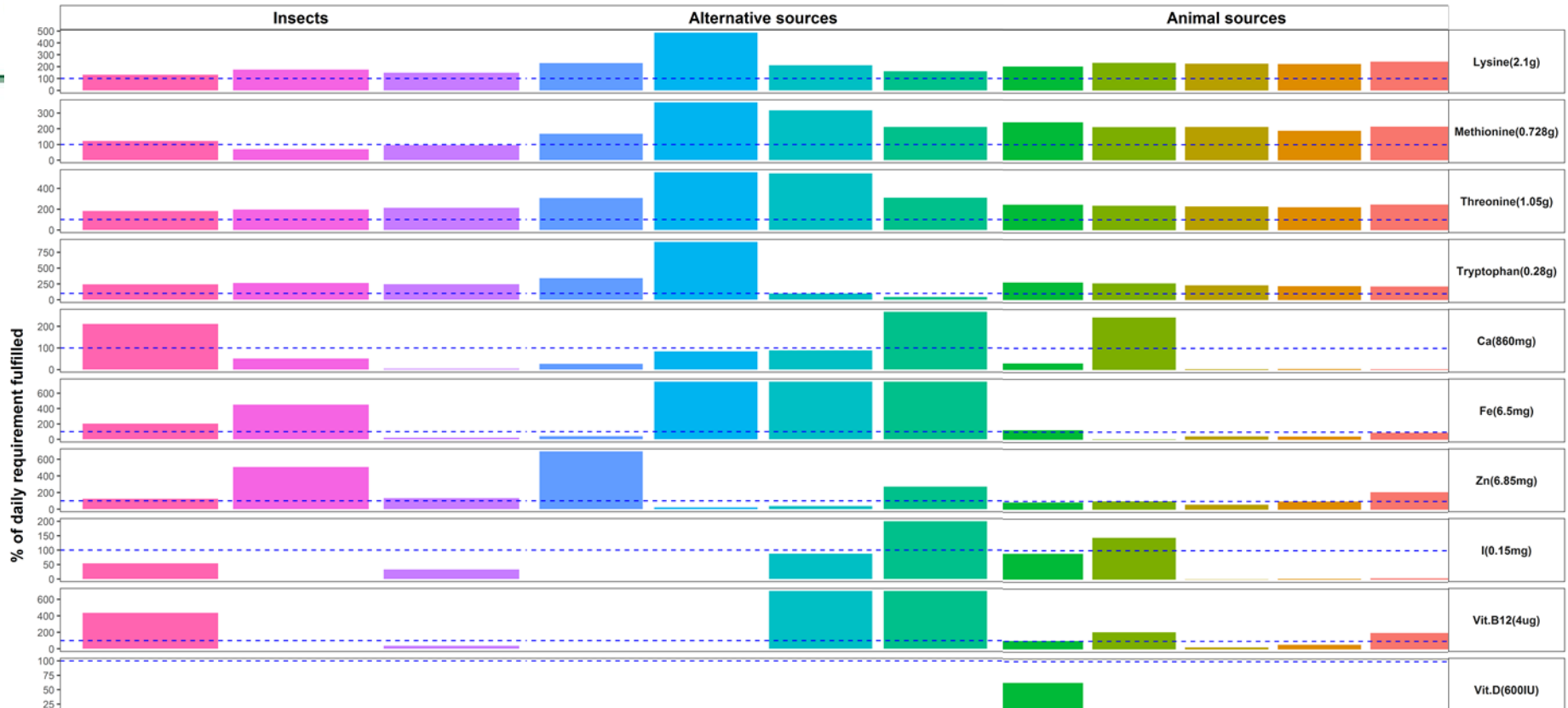
BSF fulfils almost all essential nutrients if protein requirement is fulfilled

Results – nutritional composition



Insects can supply almost all nutrients that are mainly derived from animal sources (vitamin D and I)

Results – nutritional composition

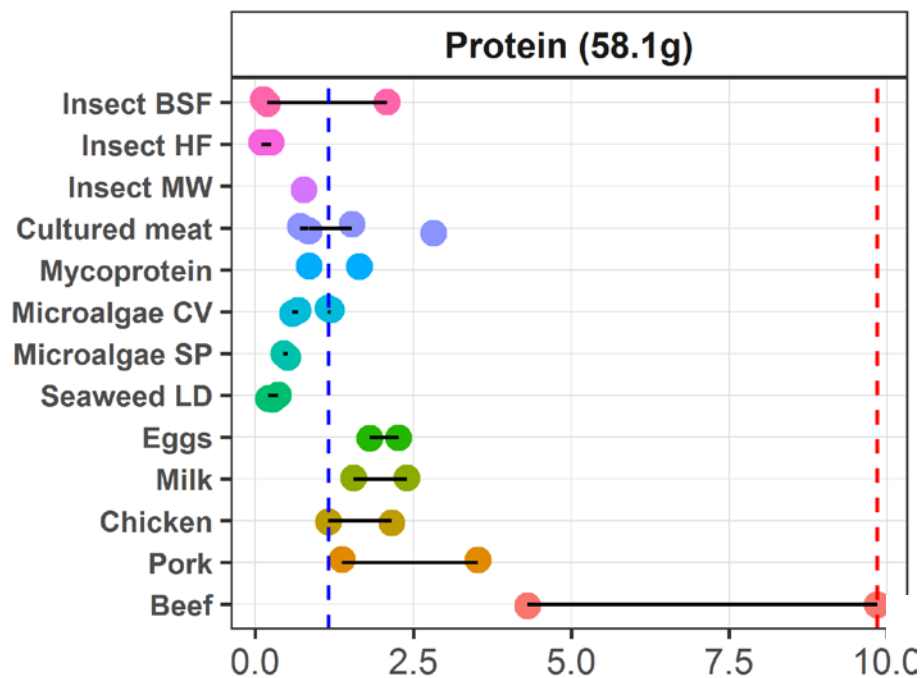


The nutritional profile between protein sources differs a lot:
focus on all nutrients essential

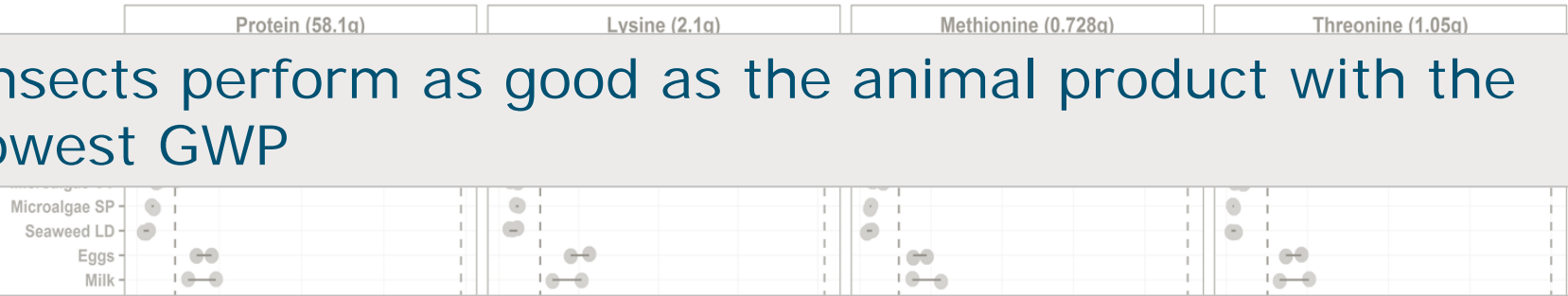
— — Daily recommended intake **more balanced nutrient profile**

Results – GWP

Environmental impact GWP to satisfy daily recommended nutrient requirements



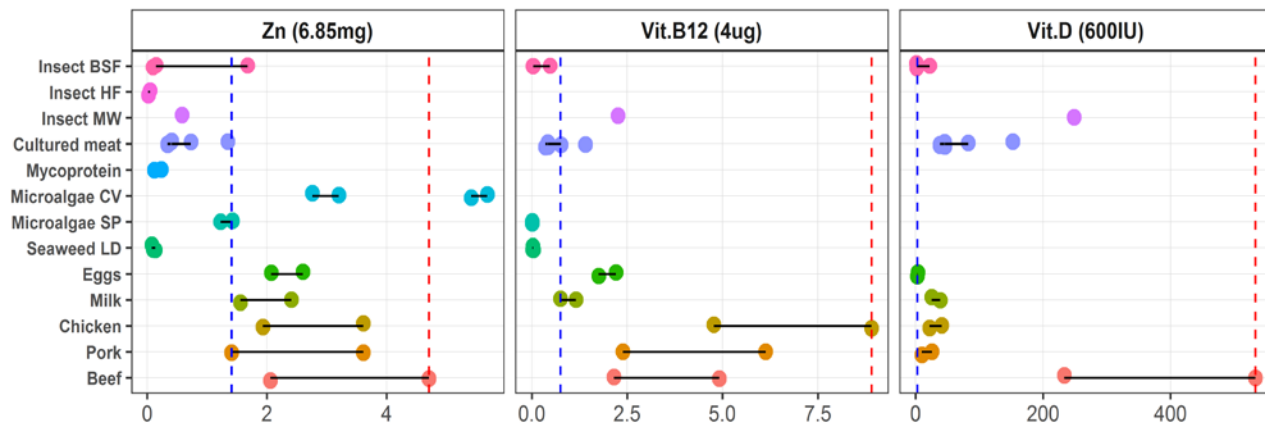
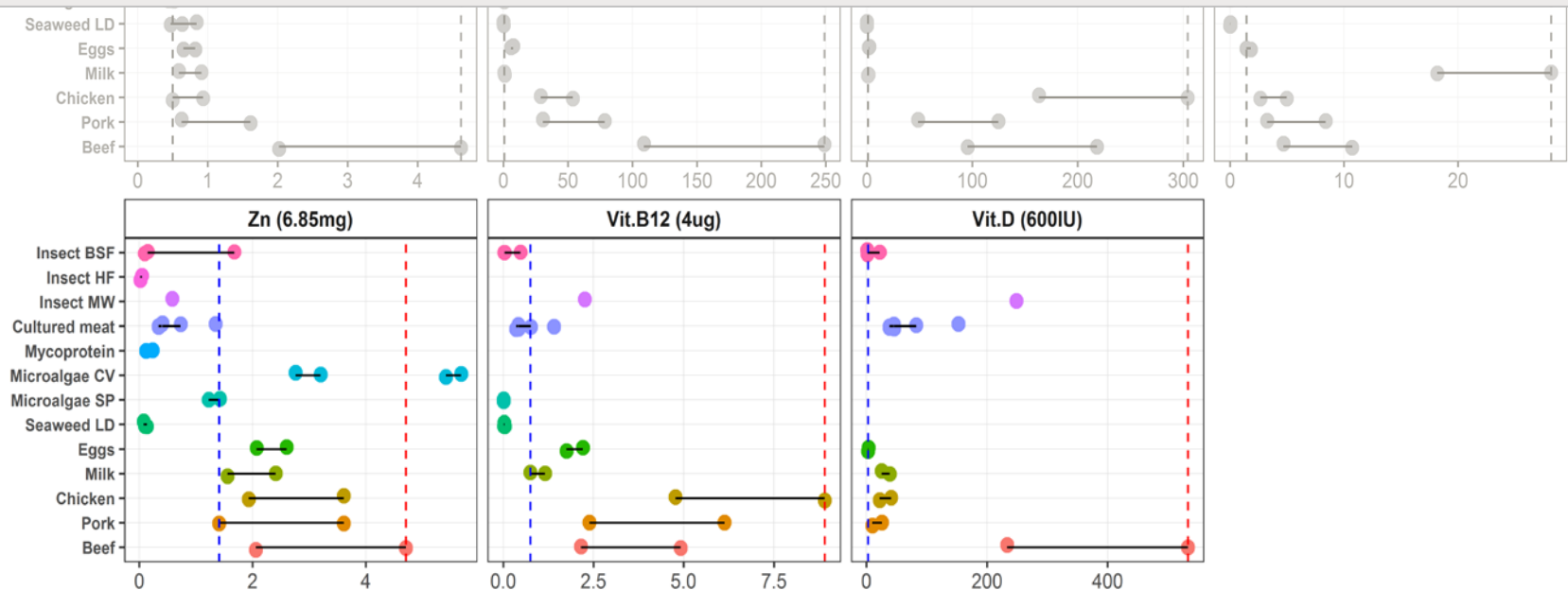
Insects perform as good as the animal product with the lowest GWP



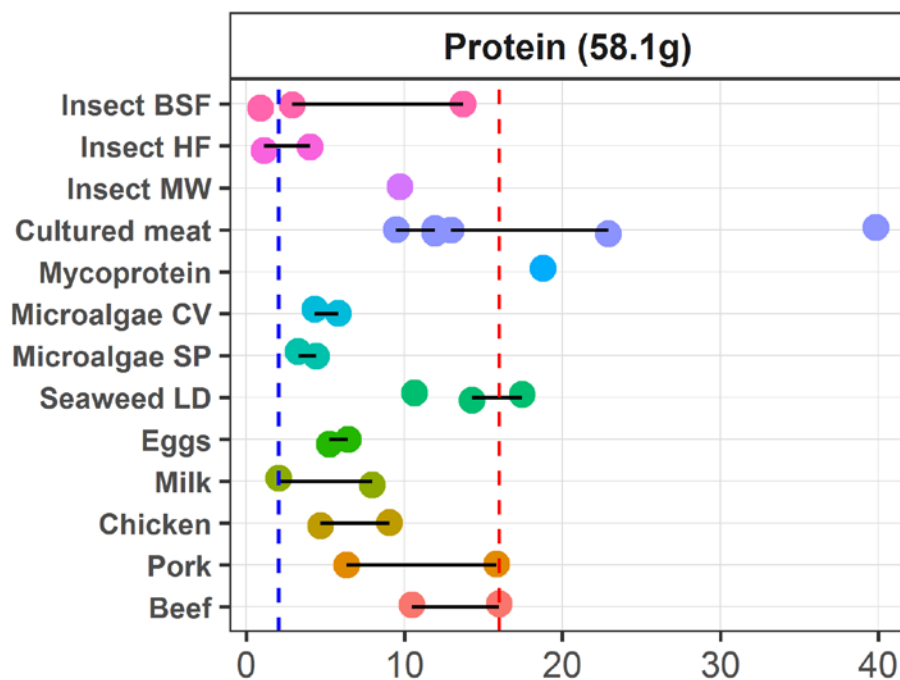
Insects perform similar to microalgae and seaweed but better than cultured meat and mycoprotein



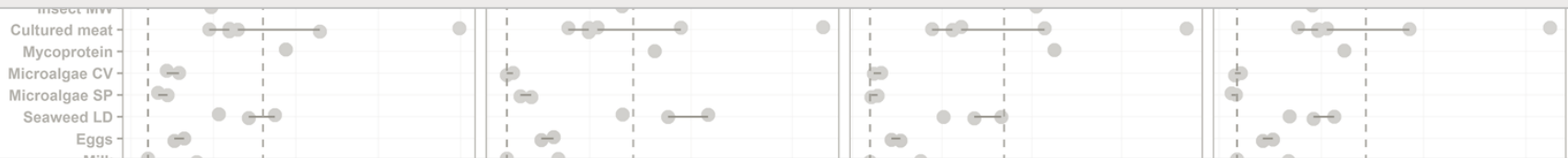
Large difference in impact between nutrients (MW)



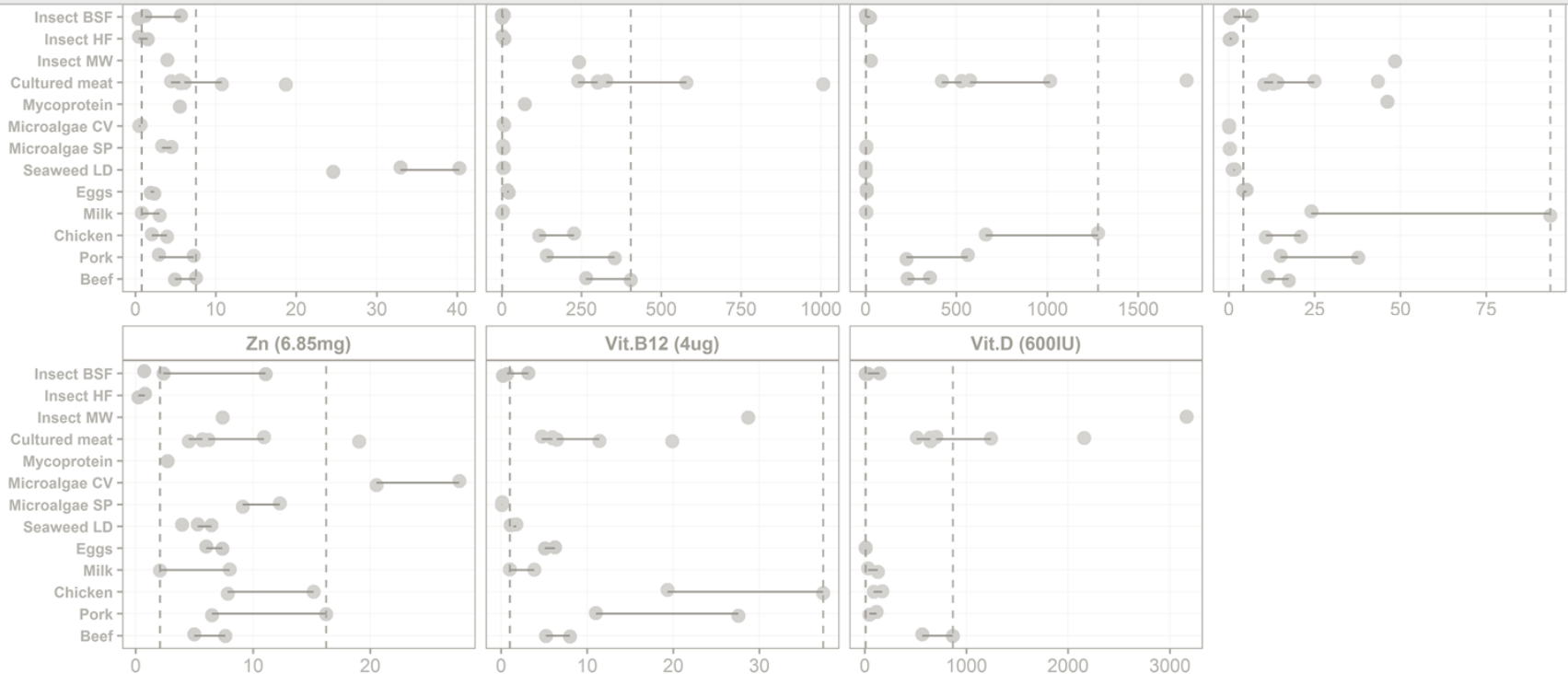
Results – energy use



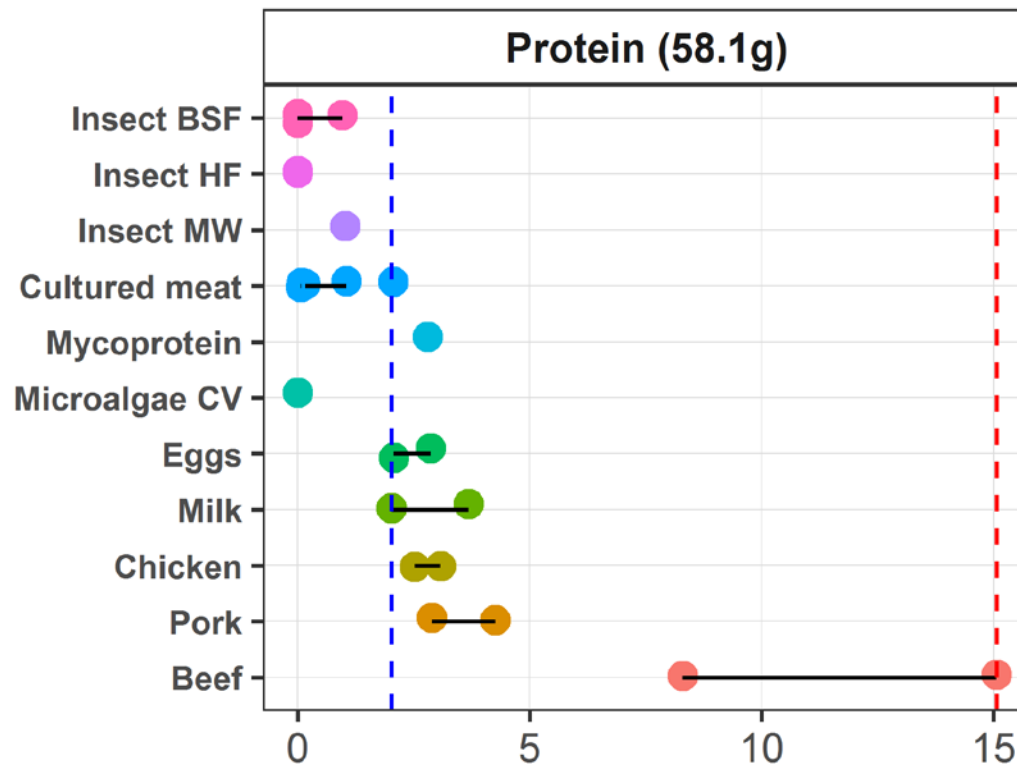
Insects perform similar to ASF

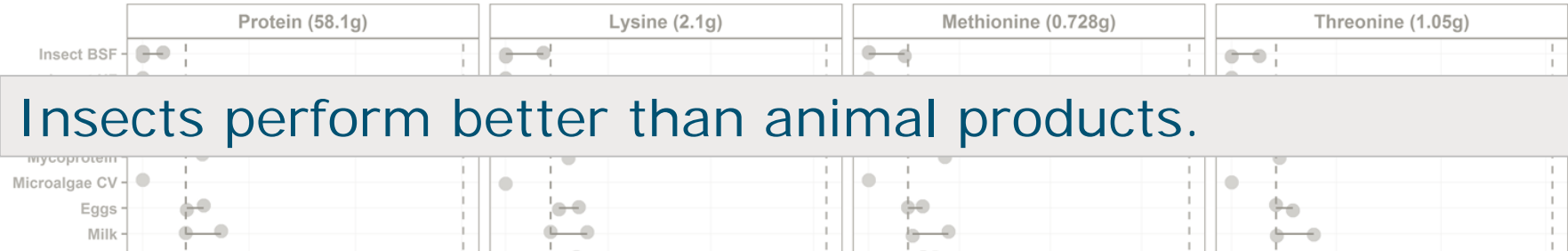


Insects perform better compared to other alternative protein sources



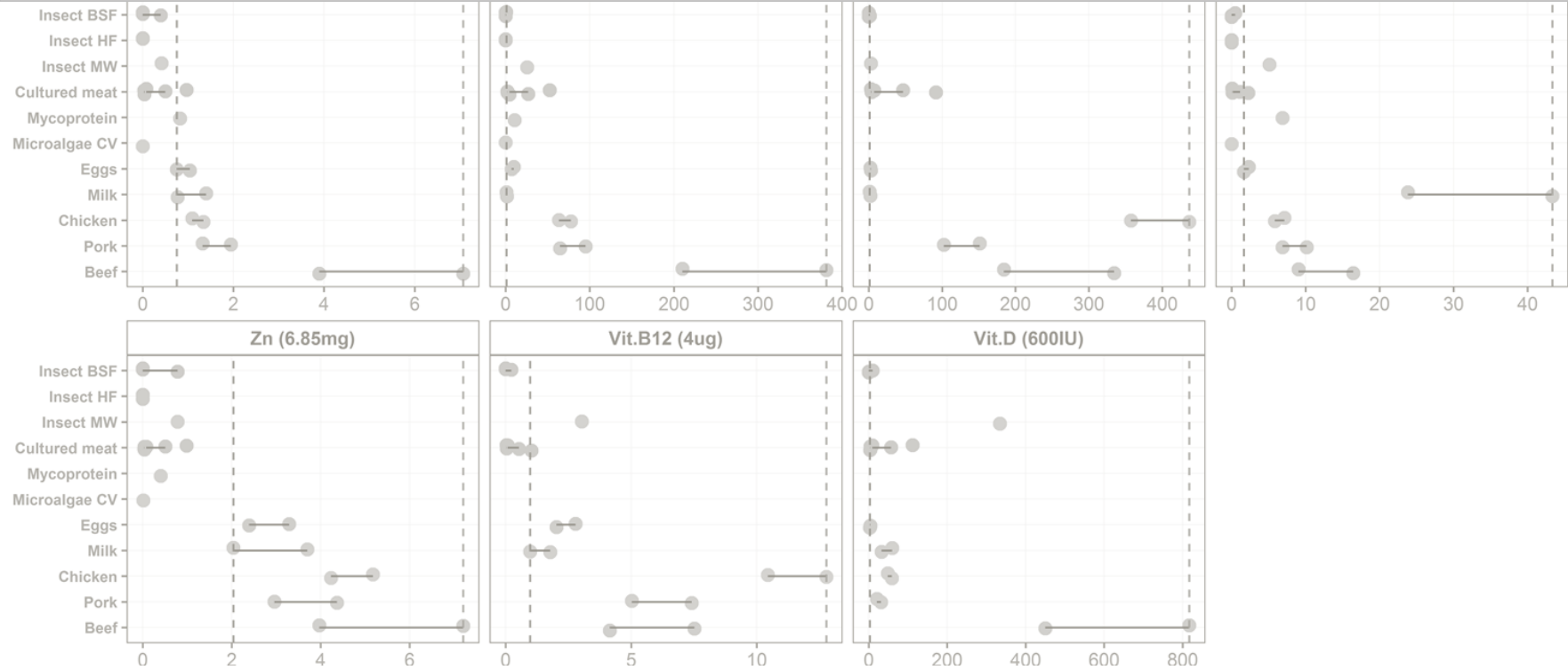
Results – land use





Insects perform better than animal products.

All alternative protein sources perform better than animal products.



Conclusion

- Favourable environmental impact in relation to ASF, especially GWP and LU
- Combinations of alternative protein sources can fulfil nutritional requirements while reducing environmental impact
- Considering all nutrients essential – whole diet

Thank you

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