

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

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Background

Conventional animal-source foods supply protein and different essential macro- and micronutrients to human diets but with high environmental impacts. Replacing animal-source foods with future foods (of terrestrial and aquatic origin) is, therefore, gaining increasing attention.

Objective

Asses the nutritional profile and the environmental impact of nine future foods and compared these with main plant-source foods, seafood and conventional animal-source foods.

Materials and methods

- Literature review to determine the nutritional profile and environmental impact of different foods (Fig. 1).
- Design and use of a single framework that allows the comparison of nutritional and environmental aspects between future, plant-source foods, seafood and animal-source foods.

Results

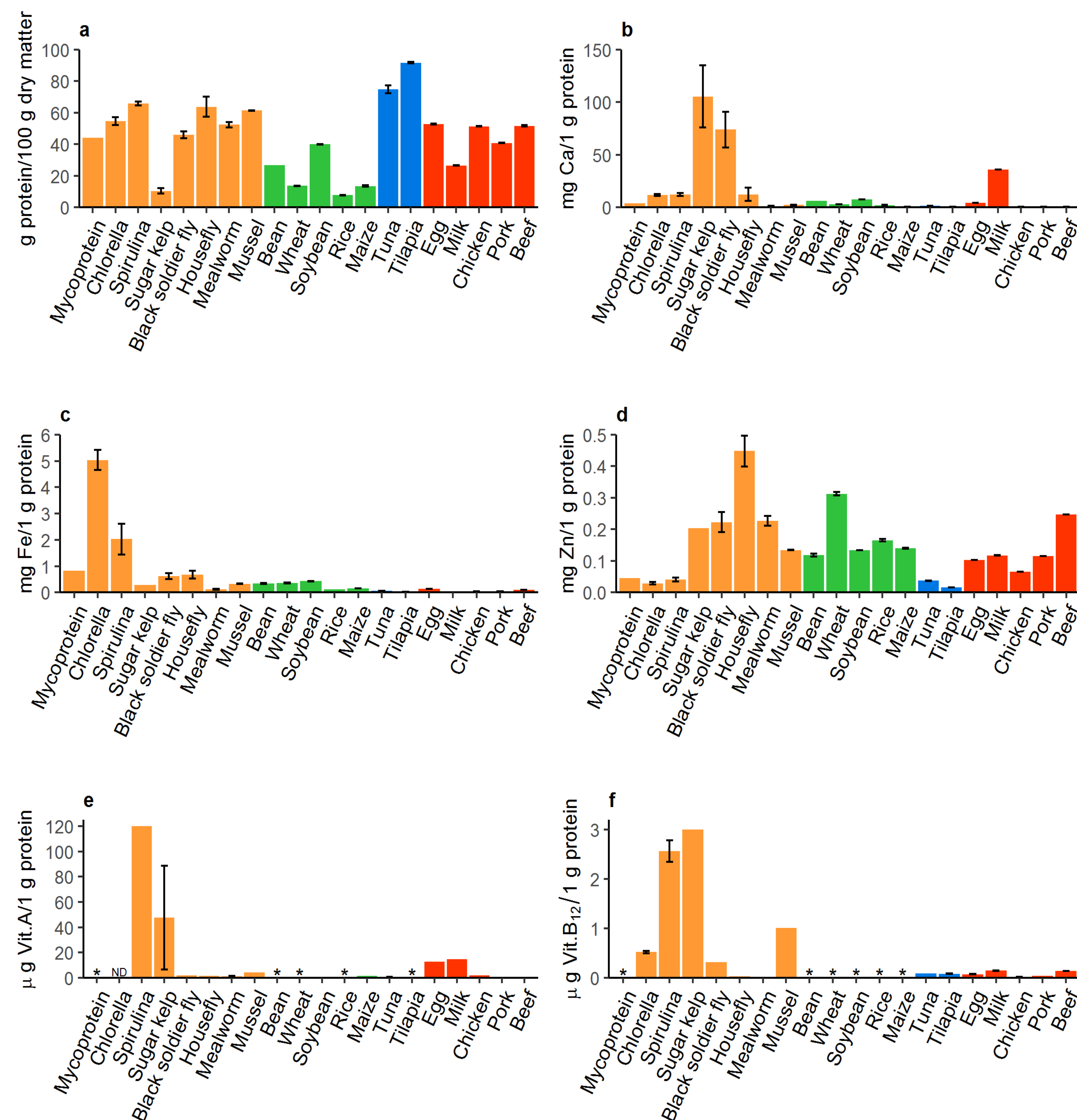


Figure 2. Nutritional content of future foods, plant-source foods, seafood and animal source foods. The mean and the standard error of the mean are shown for each case. * indicate that a nutrient is absent. ND indicate that a nutrient has not been reported in the studies or databases reviewed.

Take home message

Essential nutrients are present in future foods and can be produced with lower environmental impacts than animal-source foods. Further research in terms of nutrient bioavailability, food safety hazards and production costs will determine their use as main food sources in global diets.

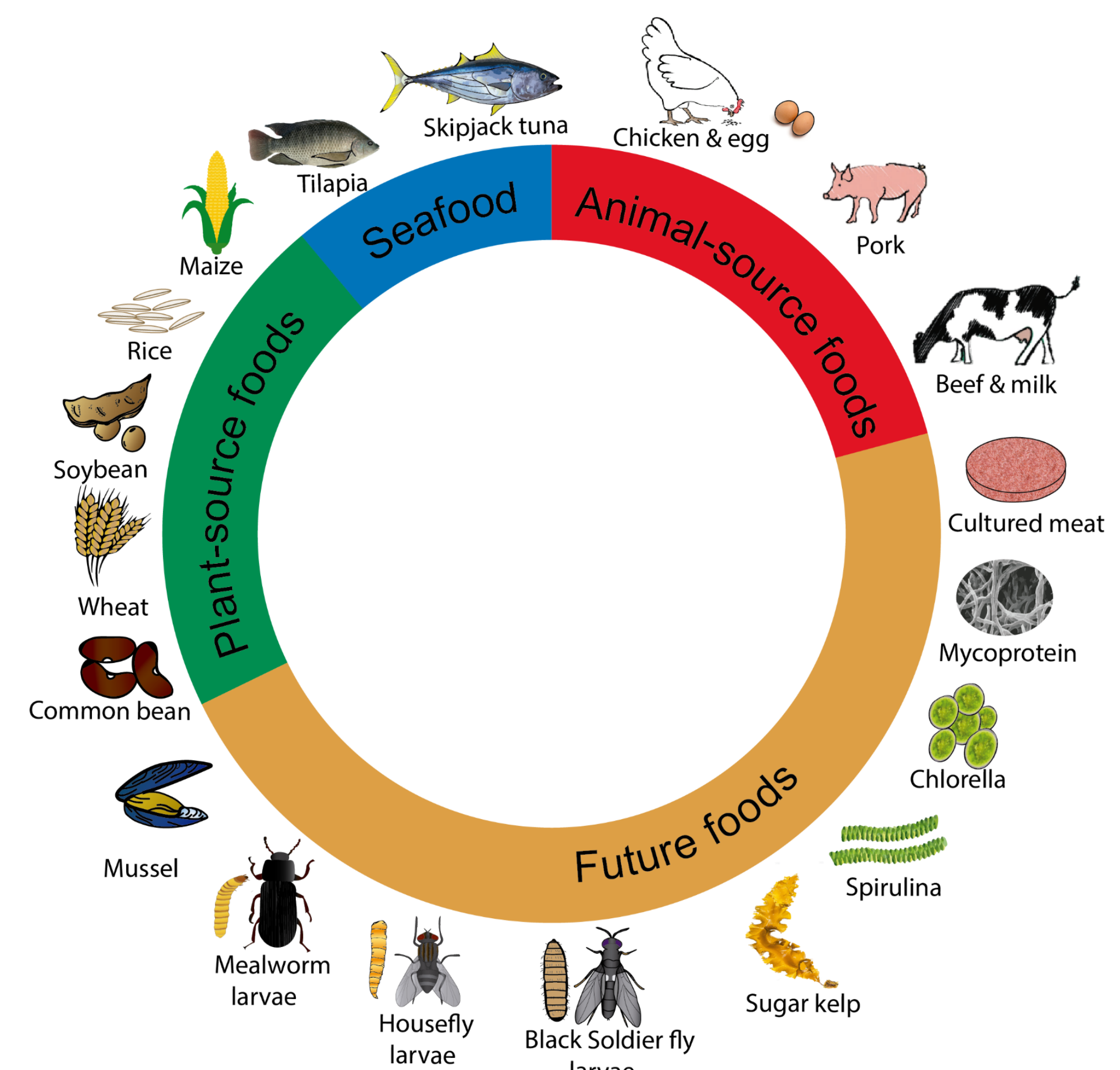


Figure 1. Future foods, conventional animal-source foods, plant based-foods and seafood included in this study.

- Some future foods or a combination of them contain all the essential nutrients present in animal-source foods, including those absent in plant-source foods (Fig.2).
- Future foods have a lower land-use than animal-source foods (Fig. 3).
- Future foods have lower or similar greenhouse gas emissions than the best performing animal-source foods (Fig.4).

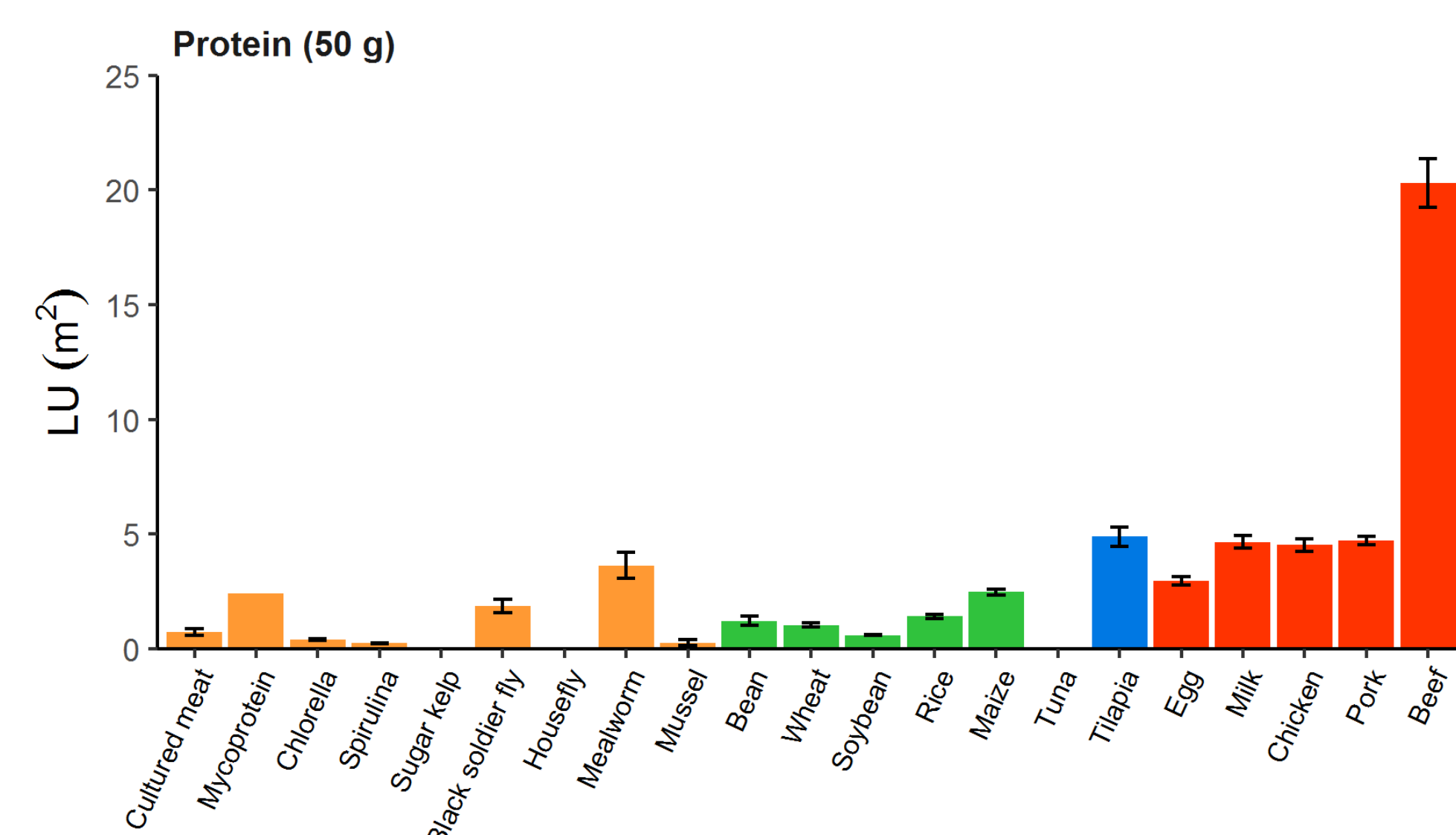


Figure 3. Land-use to fulfill the human daily protein requirement (50 g) with each food. The mean and the standard error of the mean are shown for each case.

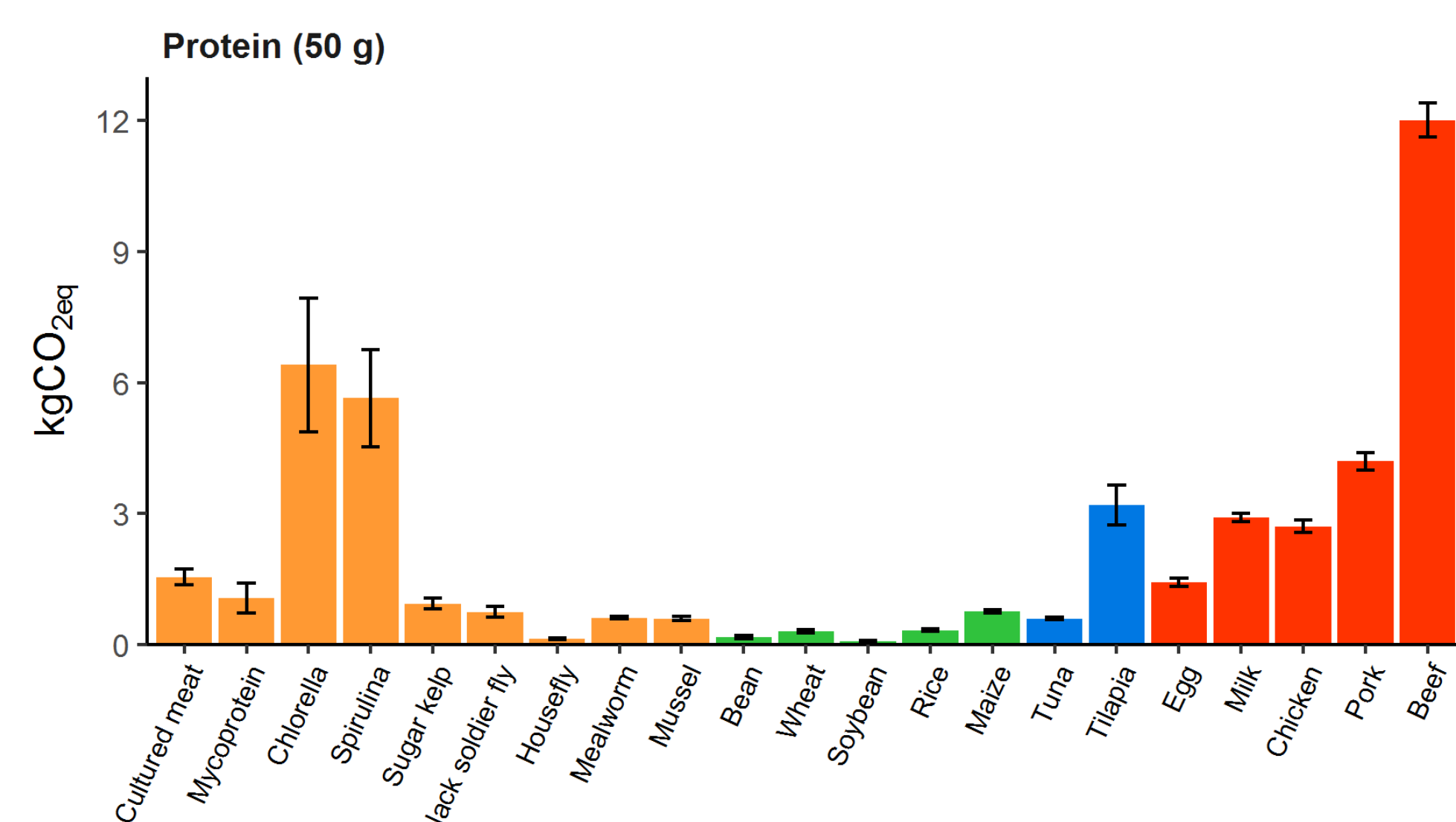


Figure 4. Greenhouse gas emissions to fulfill the human daily protein requirement (50 g) with each food. The mean and the standard error of the mean are shown for each case.