



# Environmental and Socio-Economic Opportunities for Local Food Processing

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# Environmental impact assessment

- Aim: assess environmental performance relative to substitute products
- Life Cycle Analysis
  - Method to assess impacts through lifespan, from cradle to grave.
  - ISO 14044 & PEF
  - 4 Phases: goal and scope definition, life cycle inventory, life cycle impact assessment, interpretation
- Comparison of the FOX products with alternative market product (insights provided by consumer WP)

Perceived healthier and more environmentally friendly options:	Perceived unhealthier but comparably environmentally friendly options:
Alternative reference product 1 Alternative reference product 2	Alternative reference product 3 Alternative reference product 4
Perceived comparably healthy but less environmentally friendly options:	Perceived unhealthier and less environmentally friendly options:
Alternative reference product 5 Alternative reference product 6	Alternative reference product 7 Alternative reference product 8







# Substitute products used for comparison

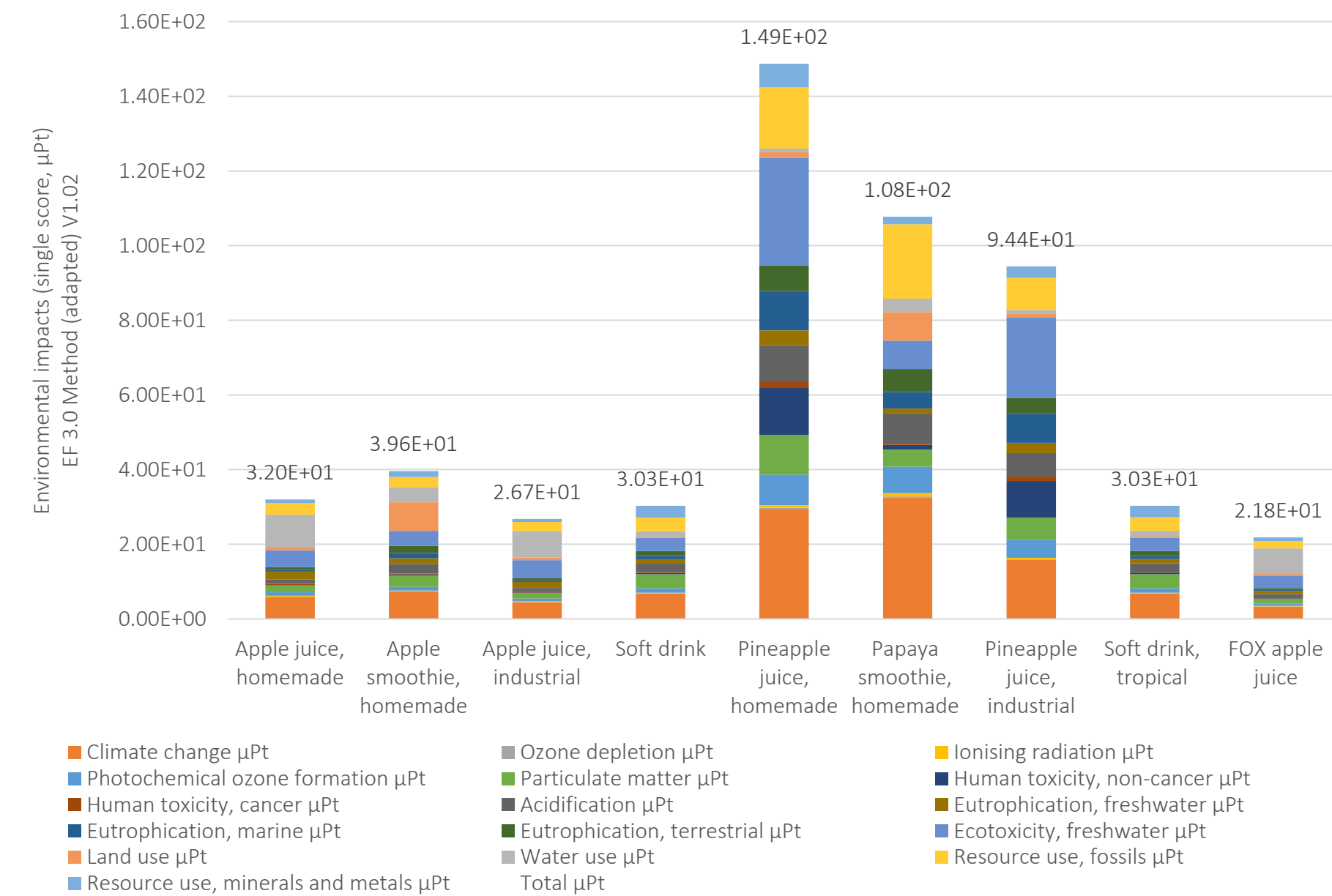
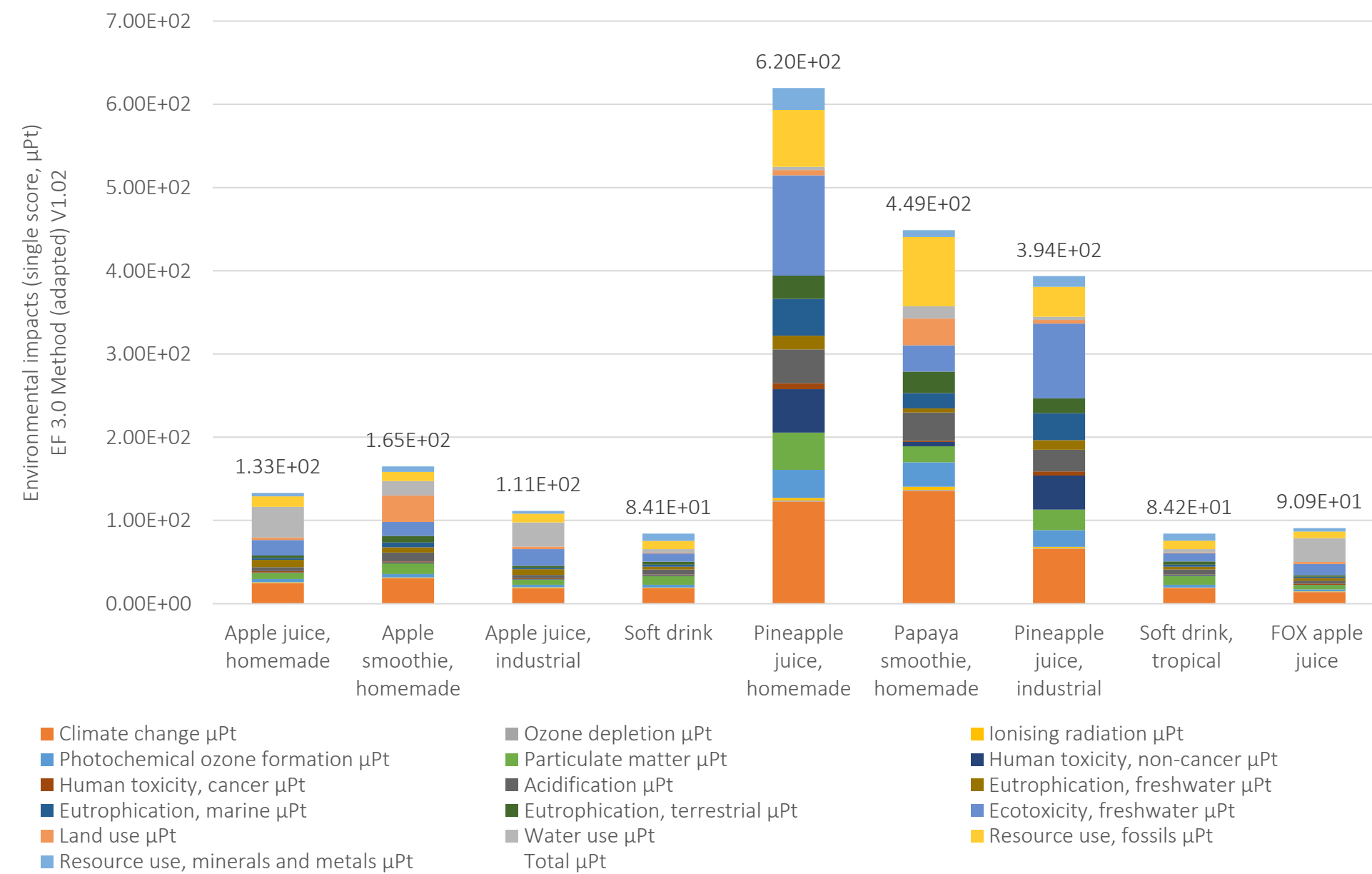
	Food Circle 1 Germany	Food Circle 2 Poland	Food Circle 3 Spain	Food Circle 4 Netherlands
Perceived healthier and more environmentally friendly options	(1) Homemade juice (local fruit) (2) Homemade smoothie (local fruit)	(10) Fresh fruit, apple (11) Fresh vegetable, bell pepper	(19) Fresh fruit, peach (20) Fresh vegetable, tomato	(28) Homemade soup (29) Fresh vegetables, zucchini
Perceived unhealthier/healthier but comparably/less environmentally friendly options	(3) Standard, non-fresh, juice (local fruit) (4) Soft drink (5) Homemade juice (tropical fruit) (6) Homemade smoothie (tropical fruit)	(12) Potato crisps (13) Potato fries (14) Fresh fruit, pineapple (15) Fresh vegetable, sweet potato	(21) Candy bar (22) Cookie (23) Fresh fruit, papaya (24) Fresh vegetable, green beans	(30) Standard soup, asparagus (31) Standard soup, green vegetables (32) Standard soup, onion (33) Noodle soup
Perceived unhealthier and less environmentally friendly options	(7) Standard, non-fresh, juice (tropical fruit) (8) Tropical soft drink	(16) Sweet potato crisps (17) Sweet potato fries	(25) Candy bar, tropical (26) Cookie, tropical	(34) Homemade soup, tropical (35) Fresh vegetable, green beans (36) Standard soup, tropical (37) Noodle soup, tropical





# FC 1 – Apple Juice

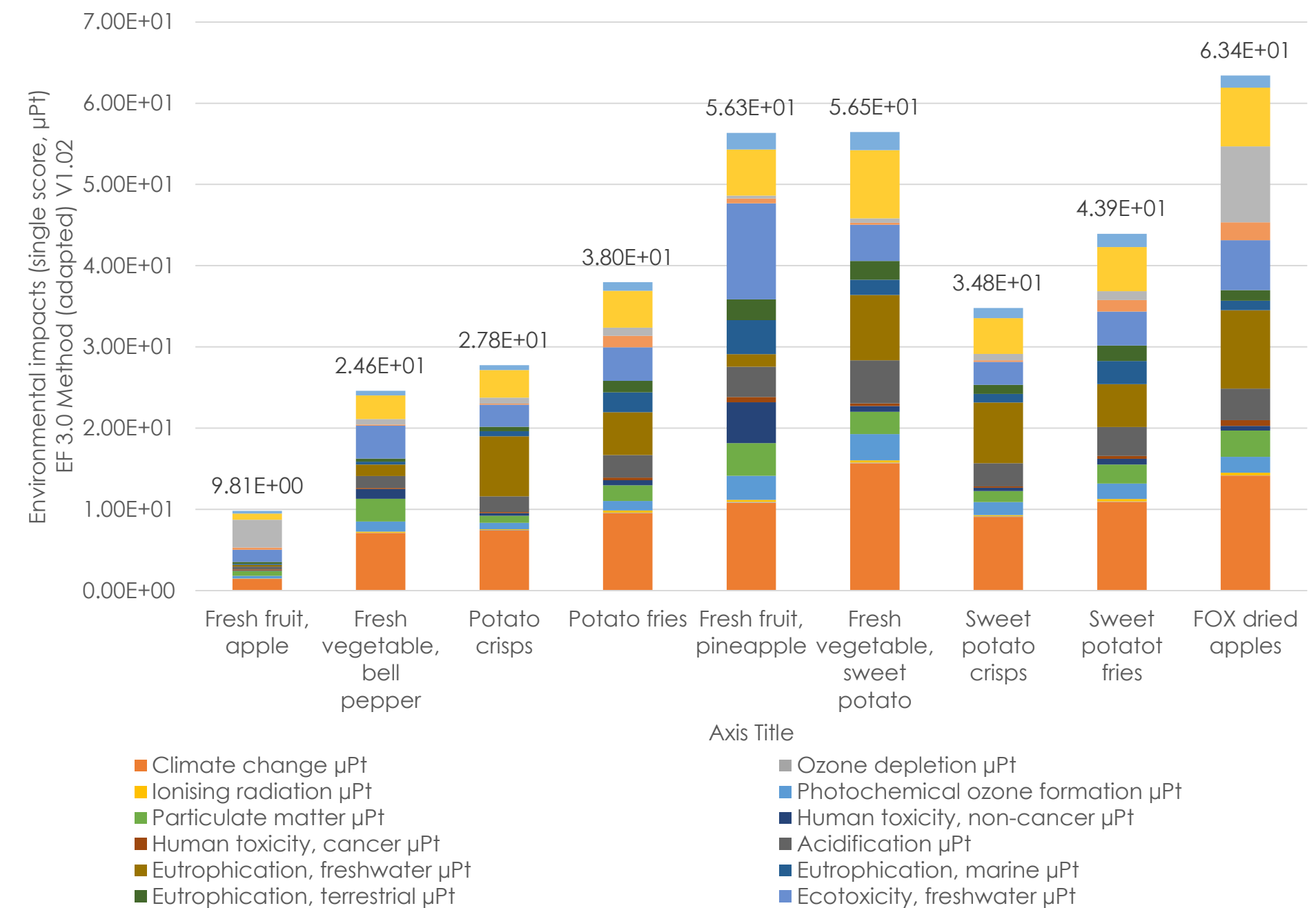
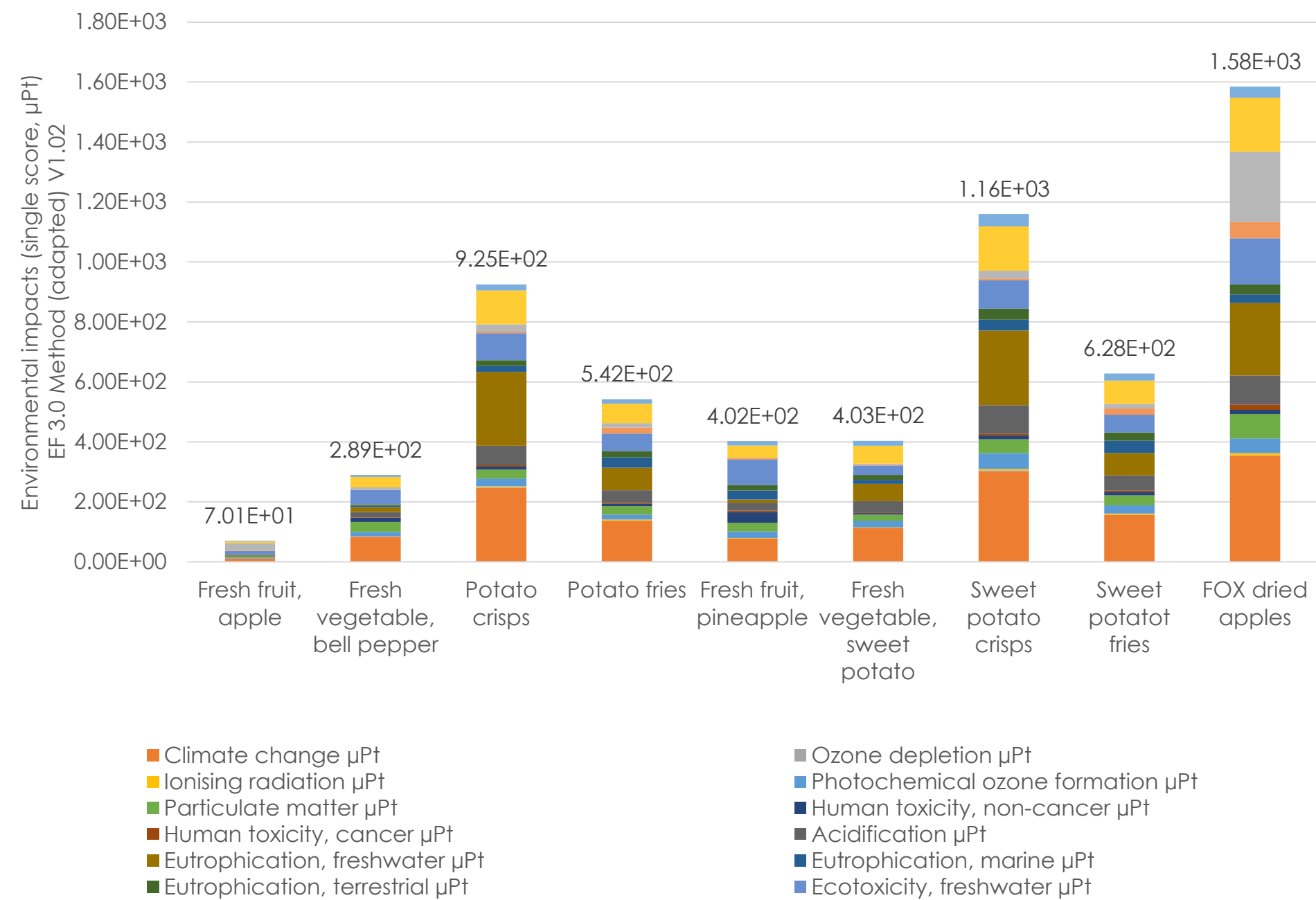
## Environmental impact (single score) per kg (left) and per portion (right)





# FC 2 – Dried apple

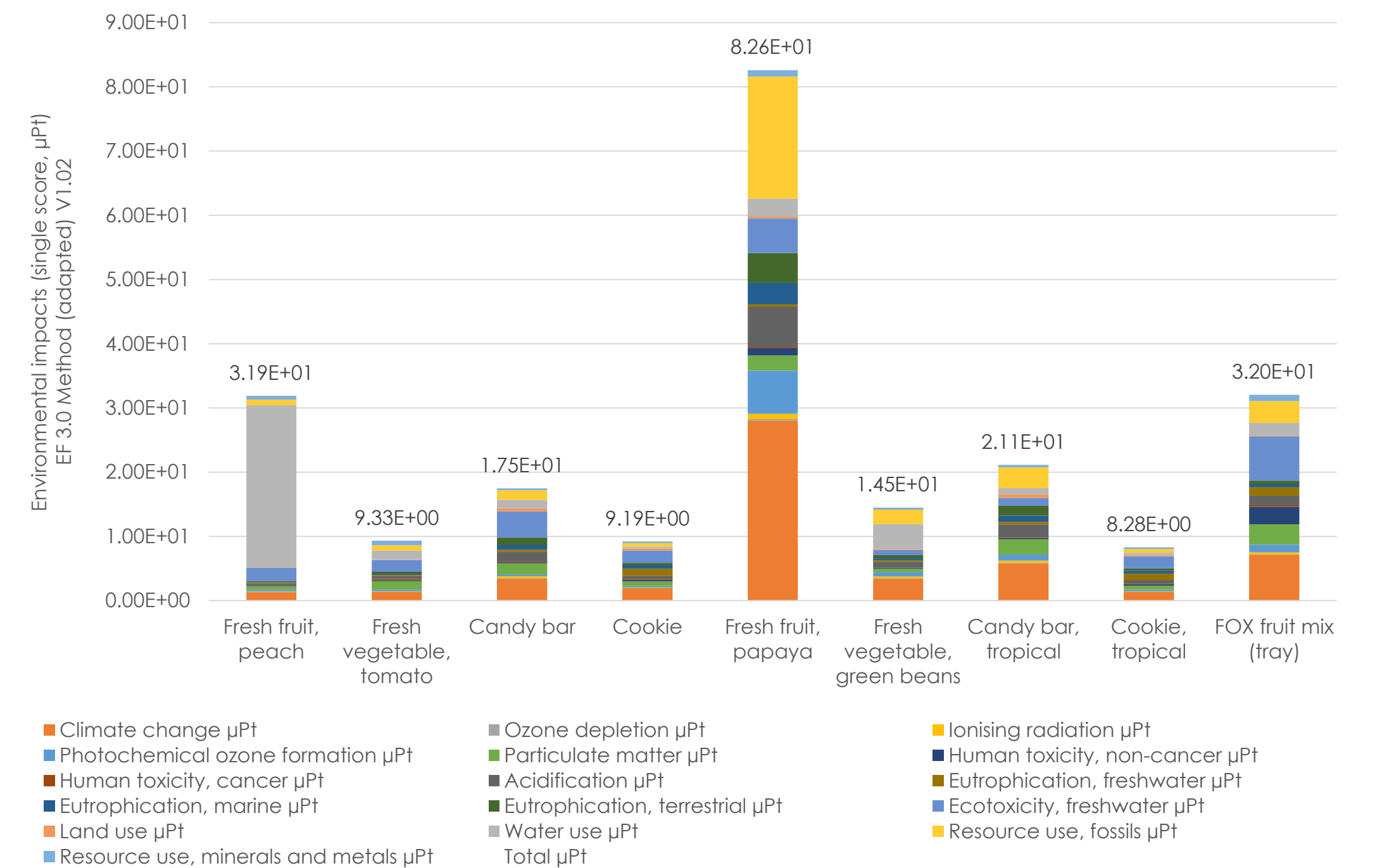
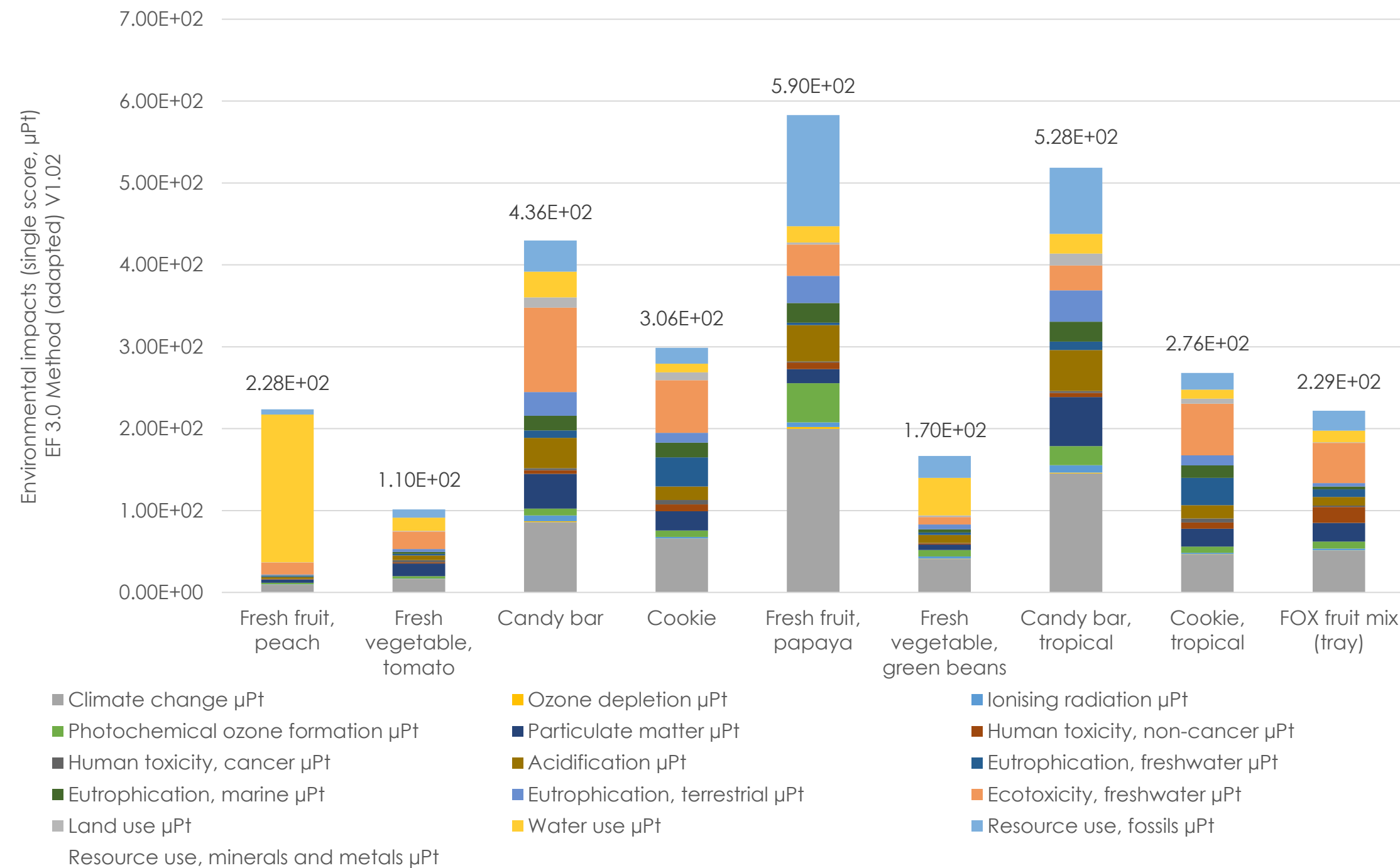
## Environmental impact (single score) per kg (left) and per portion (right)





# FC 3 – Fruit Mix

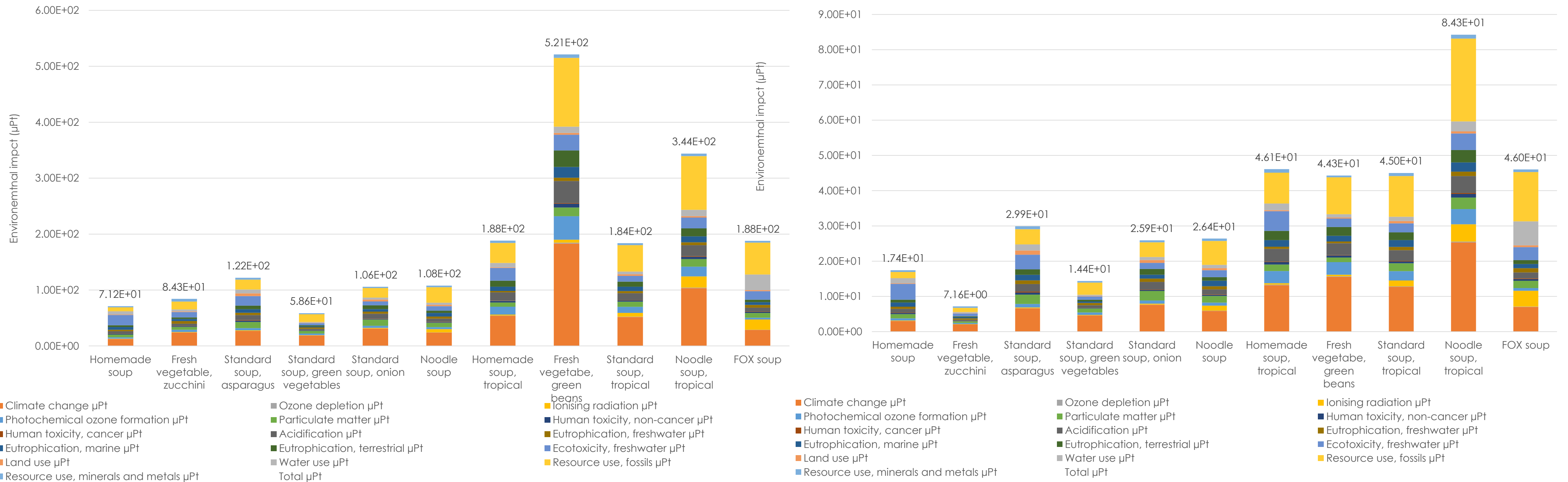
## Environmental impact (single score) per kg (left) and per portion (right)





# FC 3 – Fox Soup

## Environmental impact (single score) per kg (left) and per portion (right)



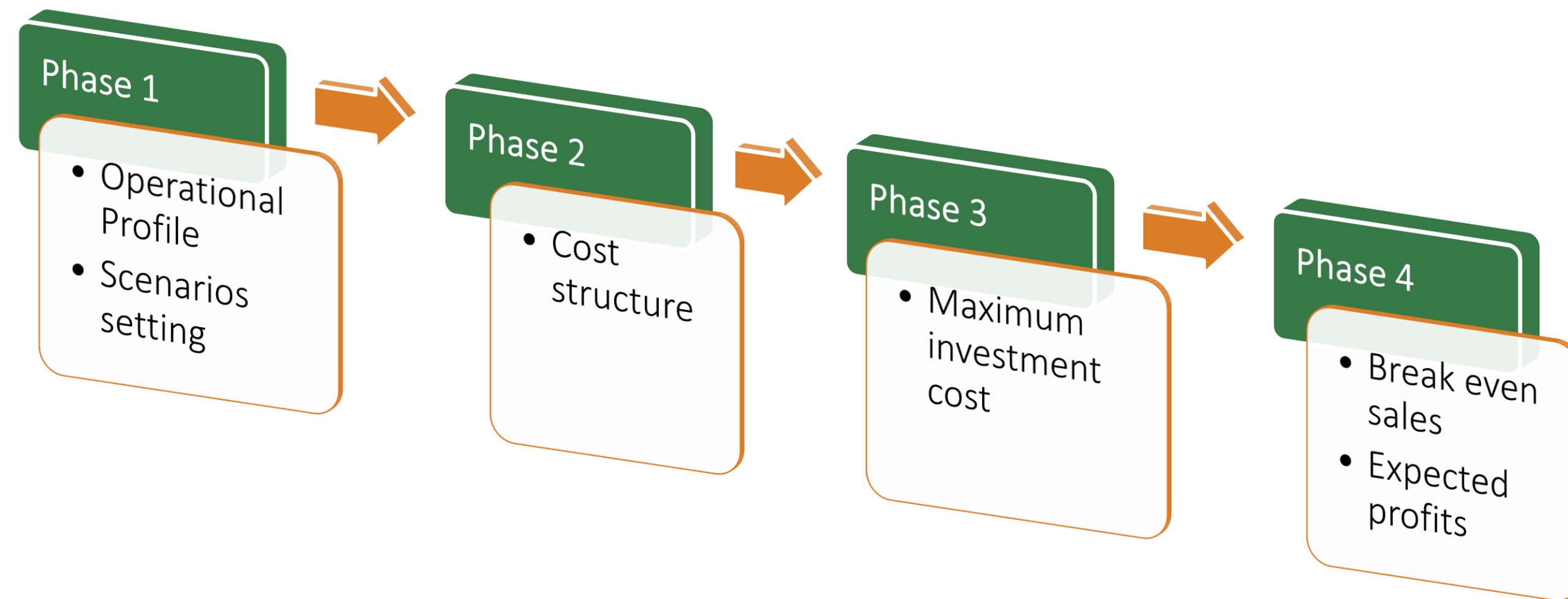




# Economic Impact Assessment

Aim: Assess economic feasibility

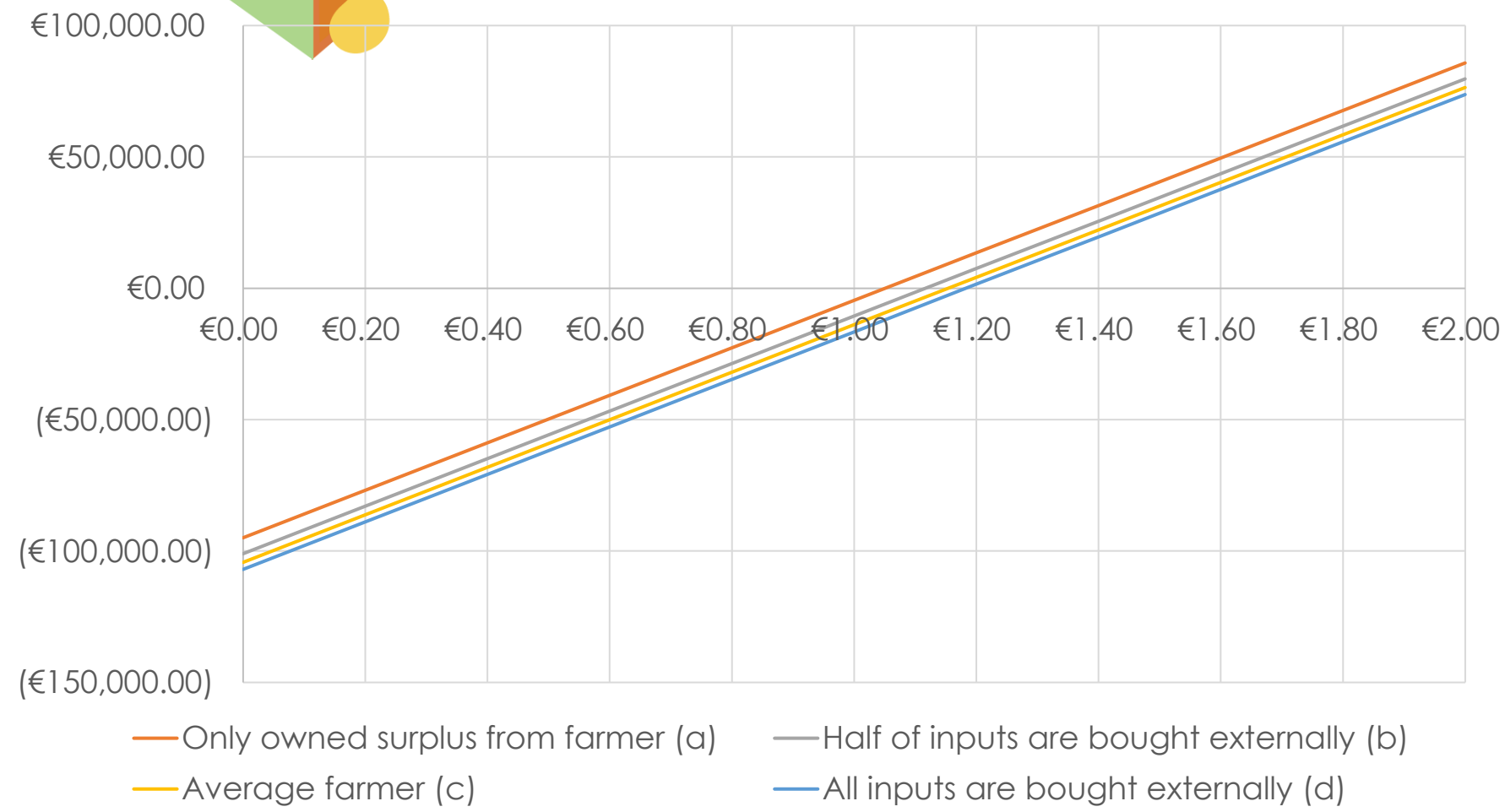
Method



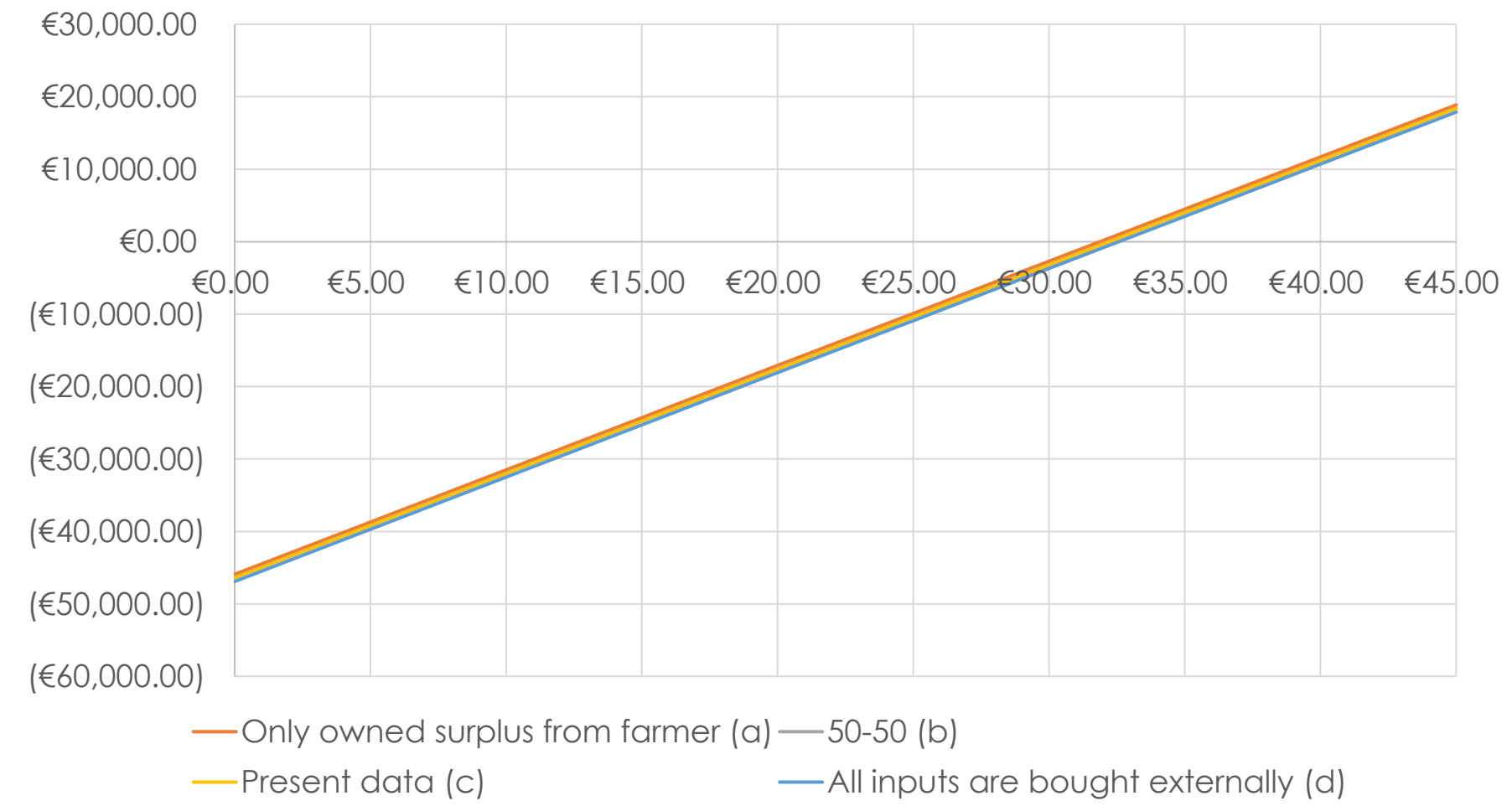


# Maximum yearly investment/ rent cost in function of selling price

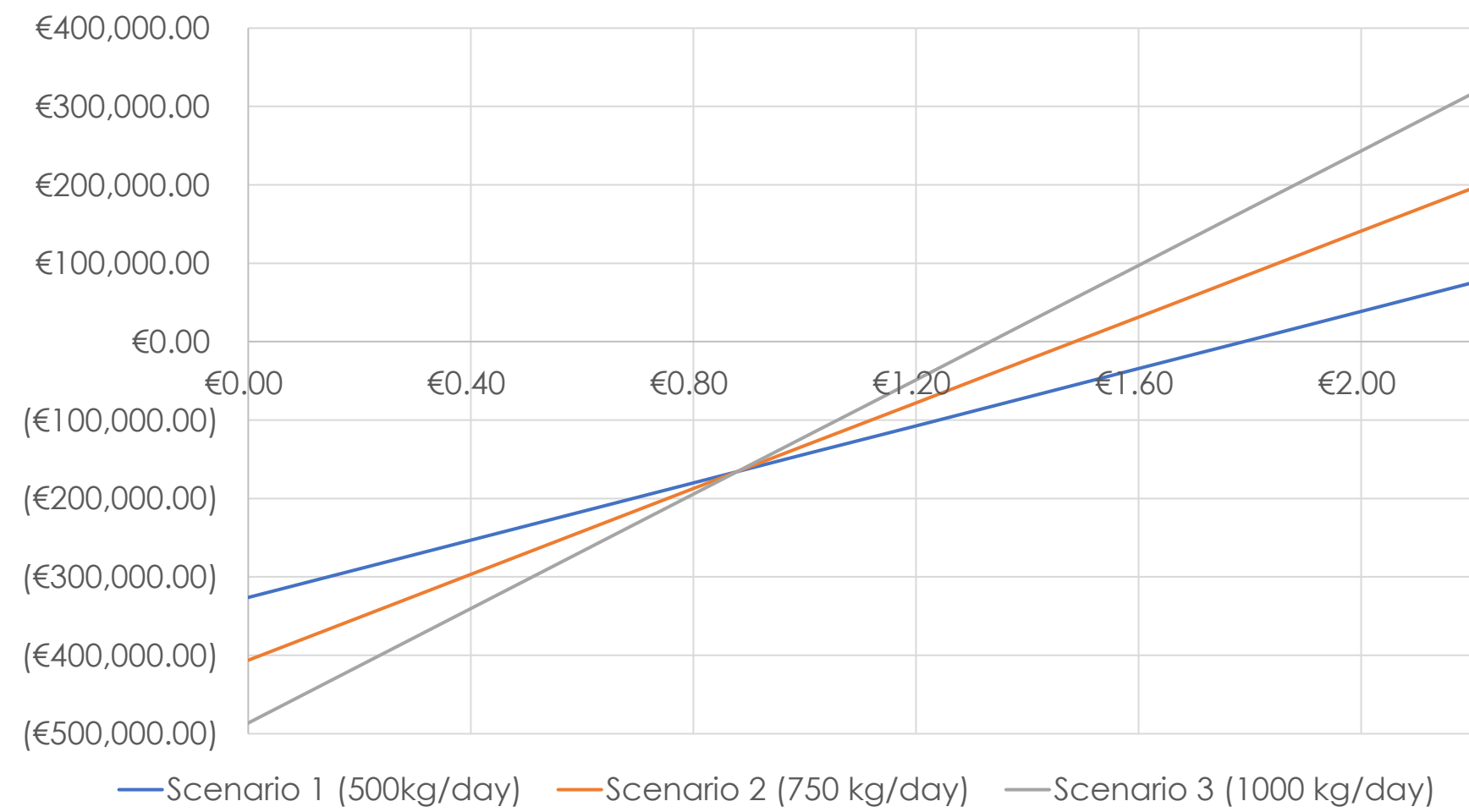
FC1



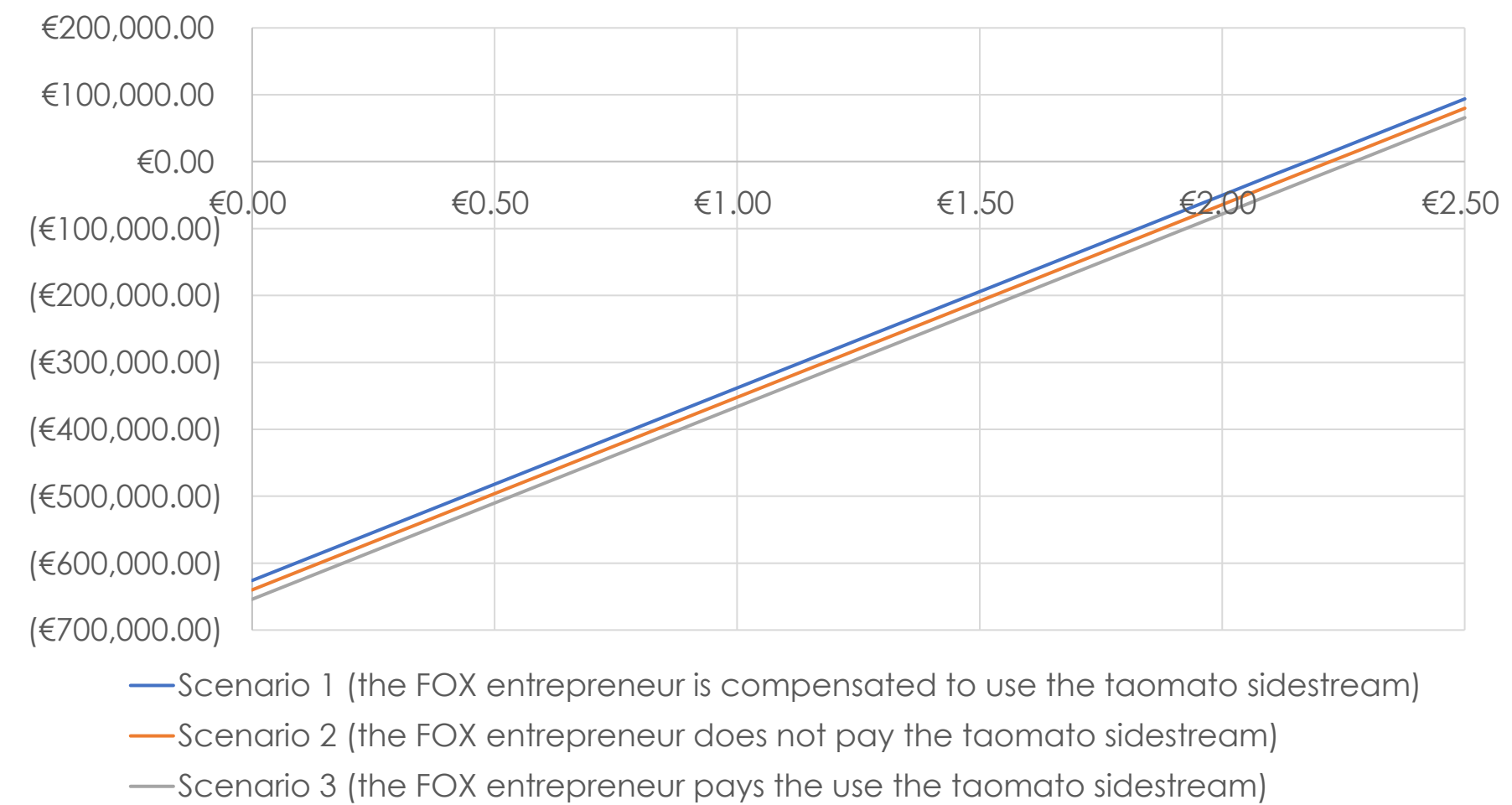
FC2



FC3



FC4





# Conclusions – Environmental impact

FOX products can either outperform alternatives or at least have environmental scores that do not significantly differ from those of the substituted products.

Each specific FOX product exhibits distinct challenges and prospects

- FOX apple juice (FC1): Explore alternatives to glass packaging and investigate more sustainable methods for managing biowaste generated during juice production.
- FOX dried apples (FC2): Rethink product design to enhance the packaging-to-product ratio and assess the feasibility of using more energy-efficient machinery.
- FOX fresh fruit and vegetable mix (FC3): Exercise caution when selecting sources for fresh fruit and vegetable inputs, as these choices can significantly impact the overall generated during production.
- FOX tomato soup (FC4): Re-evaluate product design and aim to minimize the use of highly processed ingredients like stock broth, cream, or tomato paste to reduce environmental impact





## Conclusions - Economic analysis

Each technology has potential to be economically viable, though further developments are advisable/needed.

FC1 → promising outcomes. Important cost factor: packaging → room for improvement

FC2 → less promising outcomes. Important cost factors: labour and packaging → room for improvement

FC3 → promising outcomes, though limited data for thorough assessment. For future development of technology: strive to increase production capacity

FC4 → promising outcomes, but profitability depends on how the inputs are acquired (at zero cost, or compensation for acquisition, or payment for acquisition)







# Our partners





Innovative local processing  
for a sustainable future

**#FOXfoodinabox**



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