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Dietary fat sources impact black soldier fly larvae

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# Introduction

**Protix**

Food in balance with nature.



Low grade food waste —————> High valued proteins and fats

# My role ( Ruilong Zheng

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## **Nutritionist :**

- BSFL diets designing, testing, and implementation.
- Production cost minimization
- Business development (feedstock related)
- Ammonia emission management
- “Fun projects”

## Rapeseed oil as a fat source:

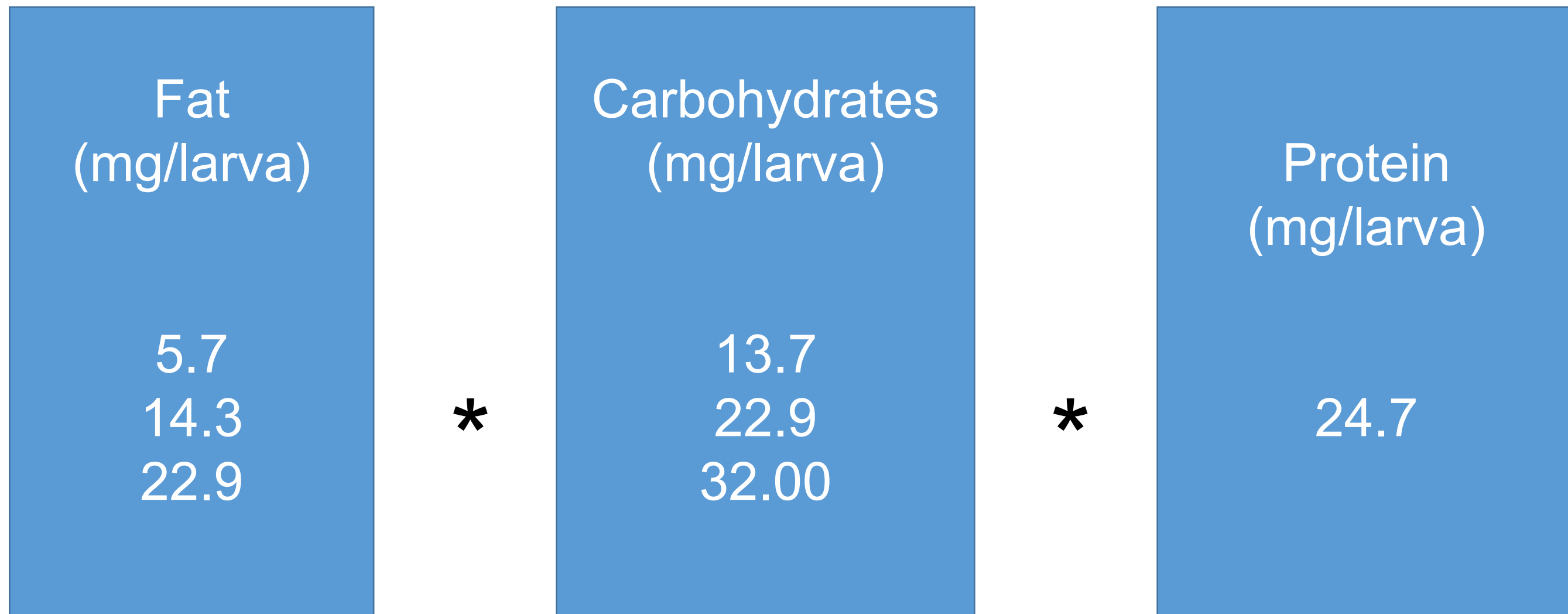
- Carbohydrates (C) can be replaced by Fat (F) to some extent without impacting feed efficiency.
- High F negatively influences the performance of BSFL and feed efficiency.

## Different fat sources?



# Materials and methods

## Nutrient per larvae:



- Similar texture
- 3 kinds of fat
- Reps = 4, 350 larvae per container.



# Materials and methods



Chicken feed  
water



Casein



Cellulose



maizena



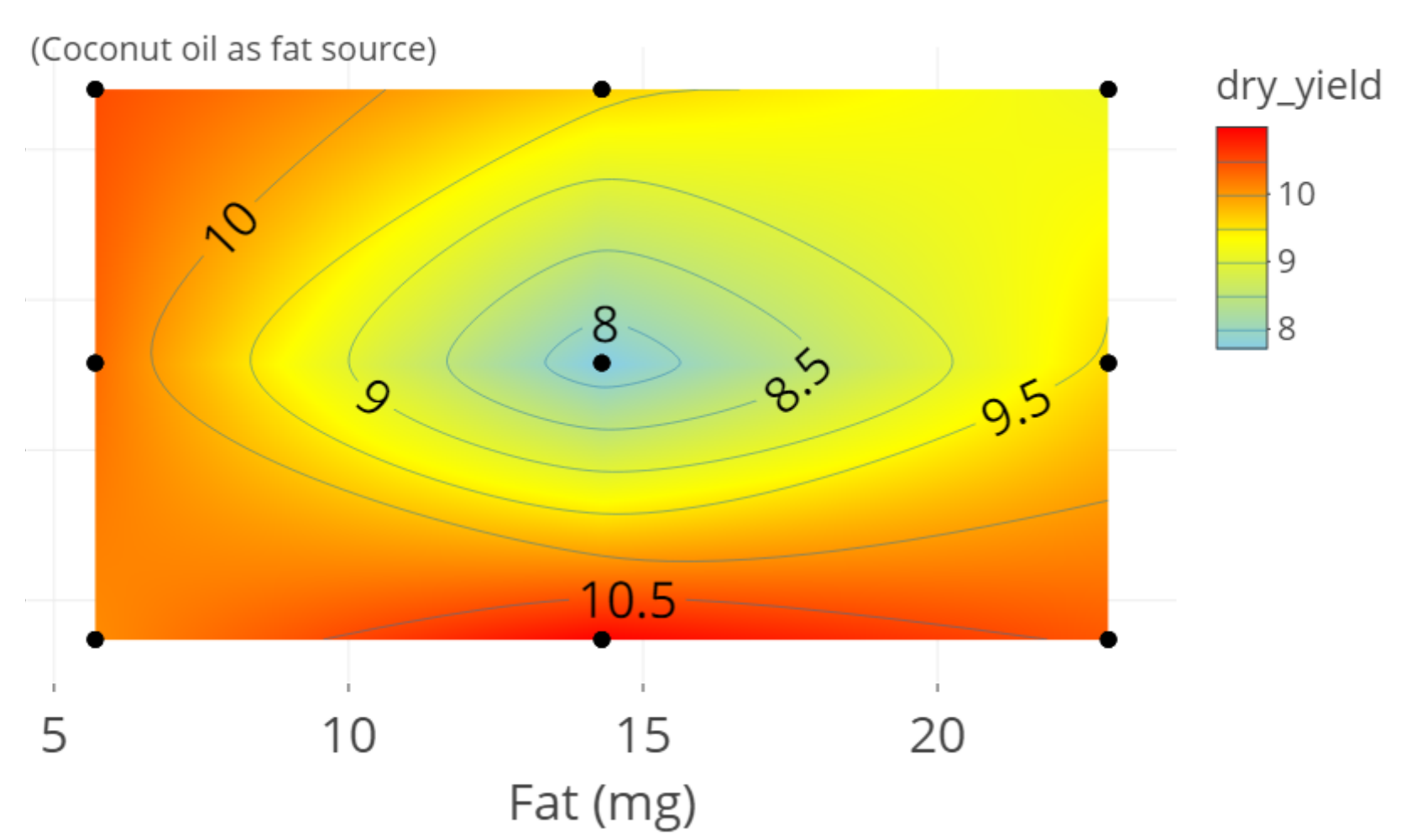
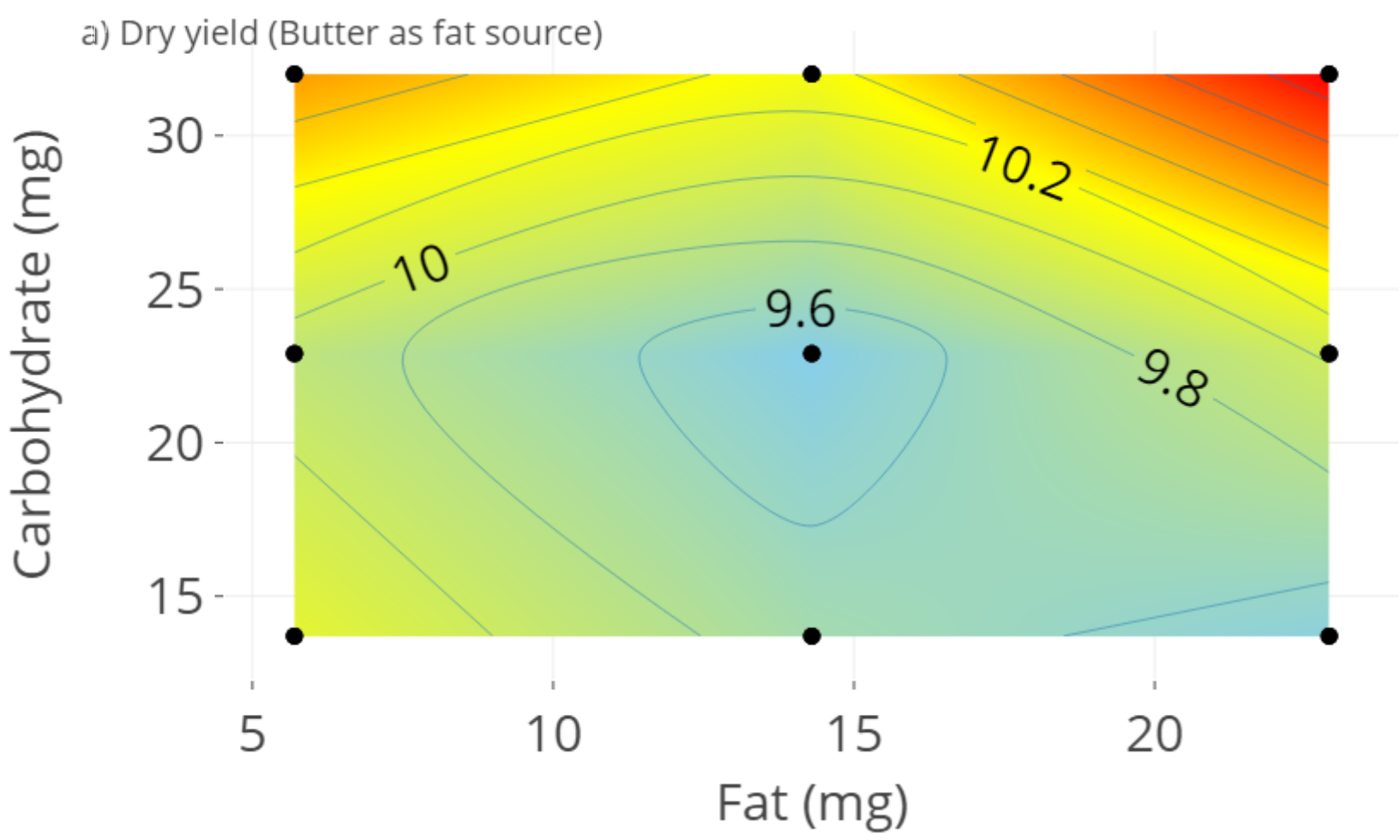
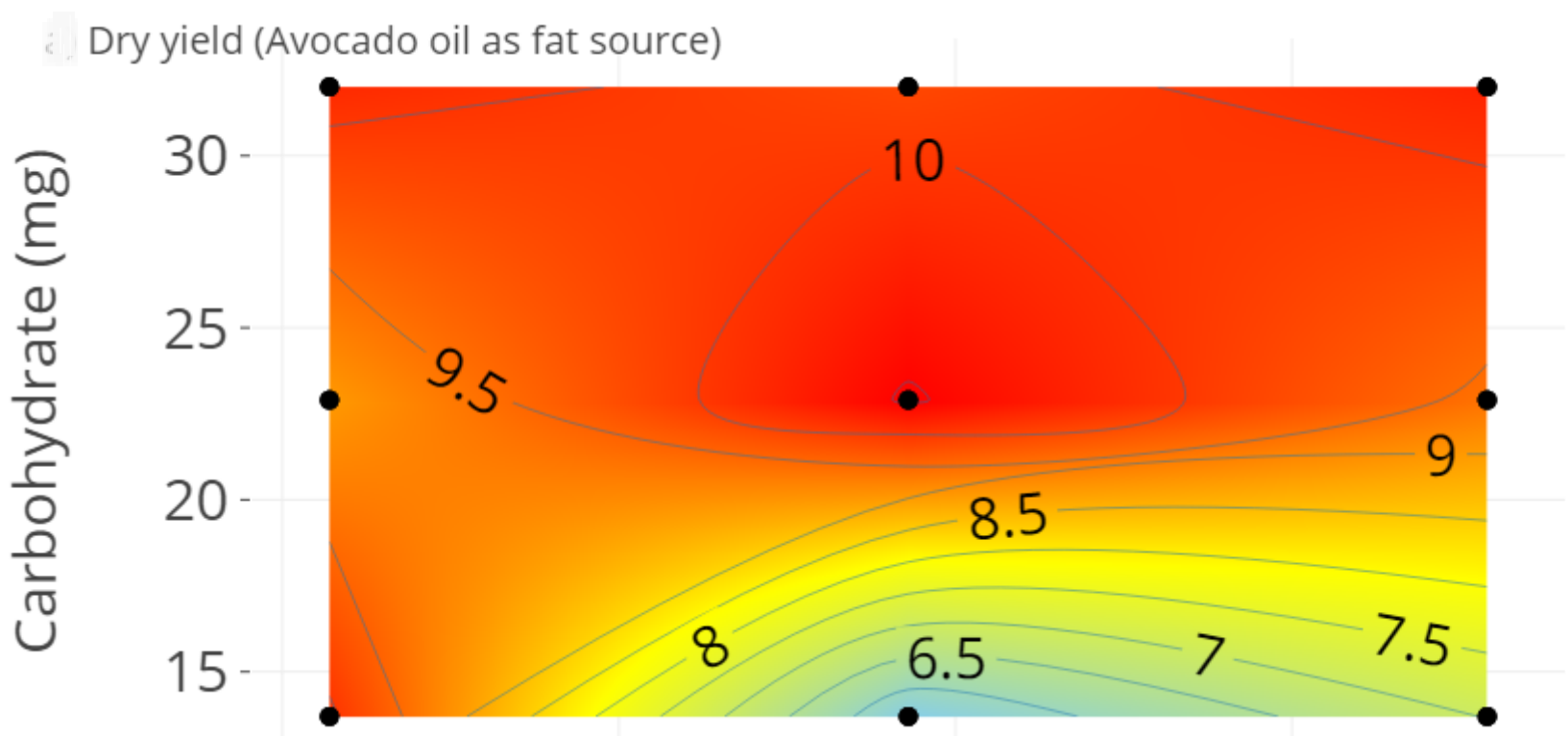
fat sources



# We quantified the influence of dietary fat and carbohydrates on the following variables.

- Larvae dry yield
- Larval survival
- Feed efficiency

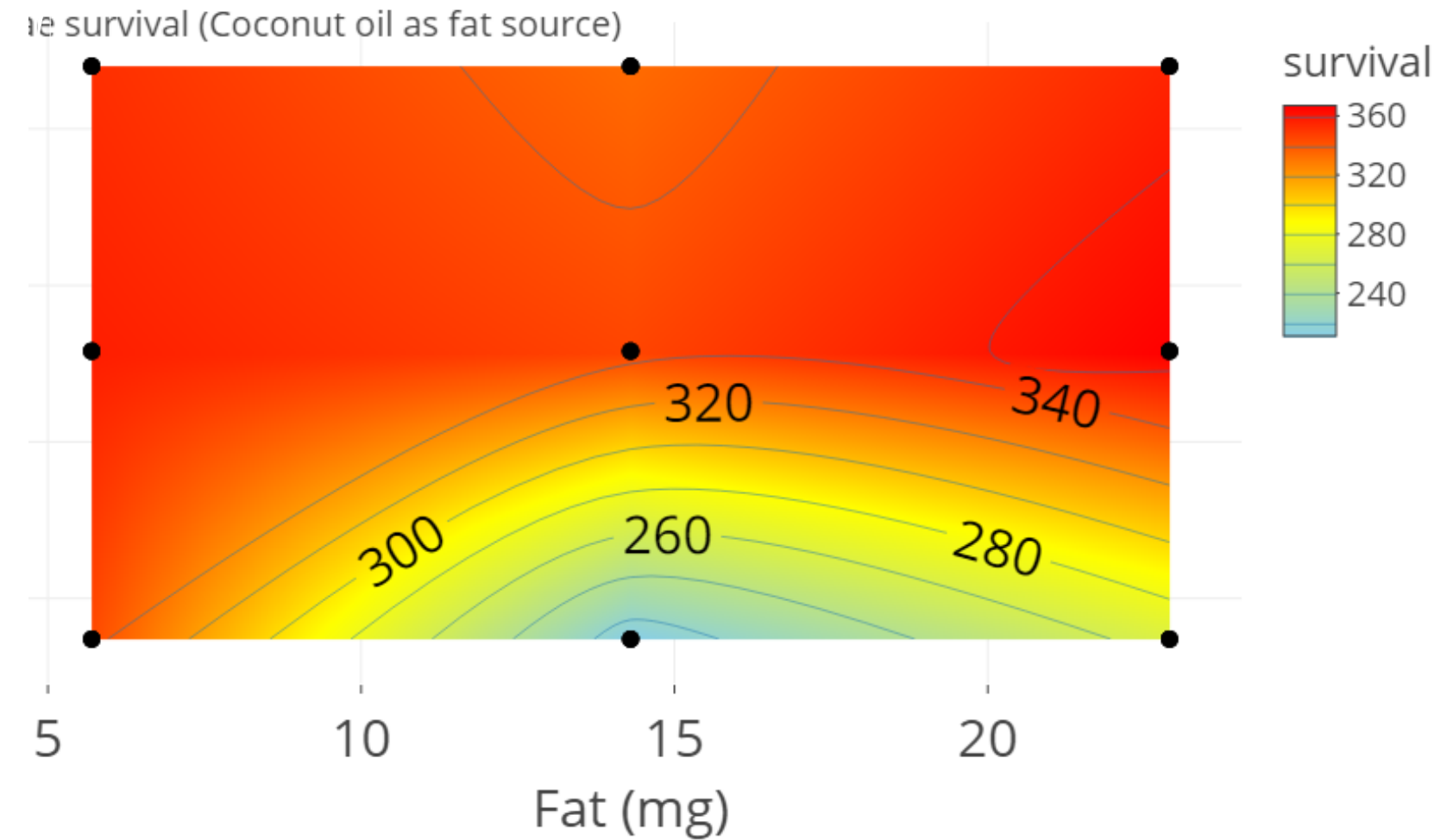
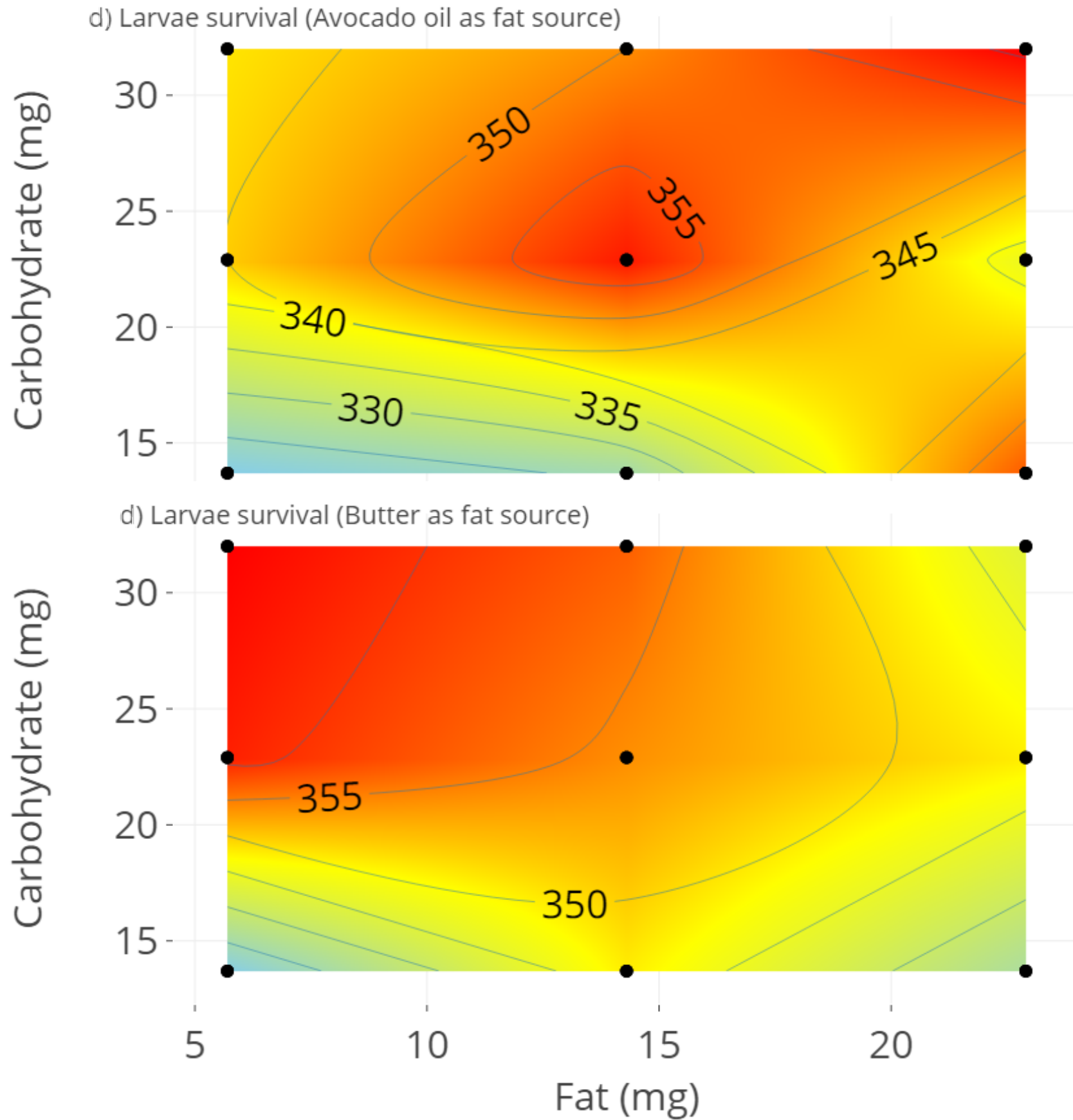
# Dry yield (g)



Coconut fat is the best replacement for F.

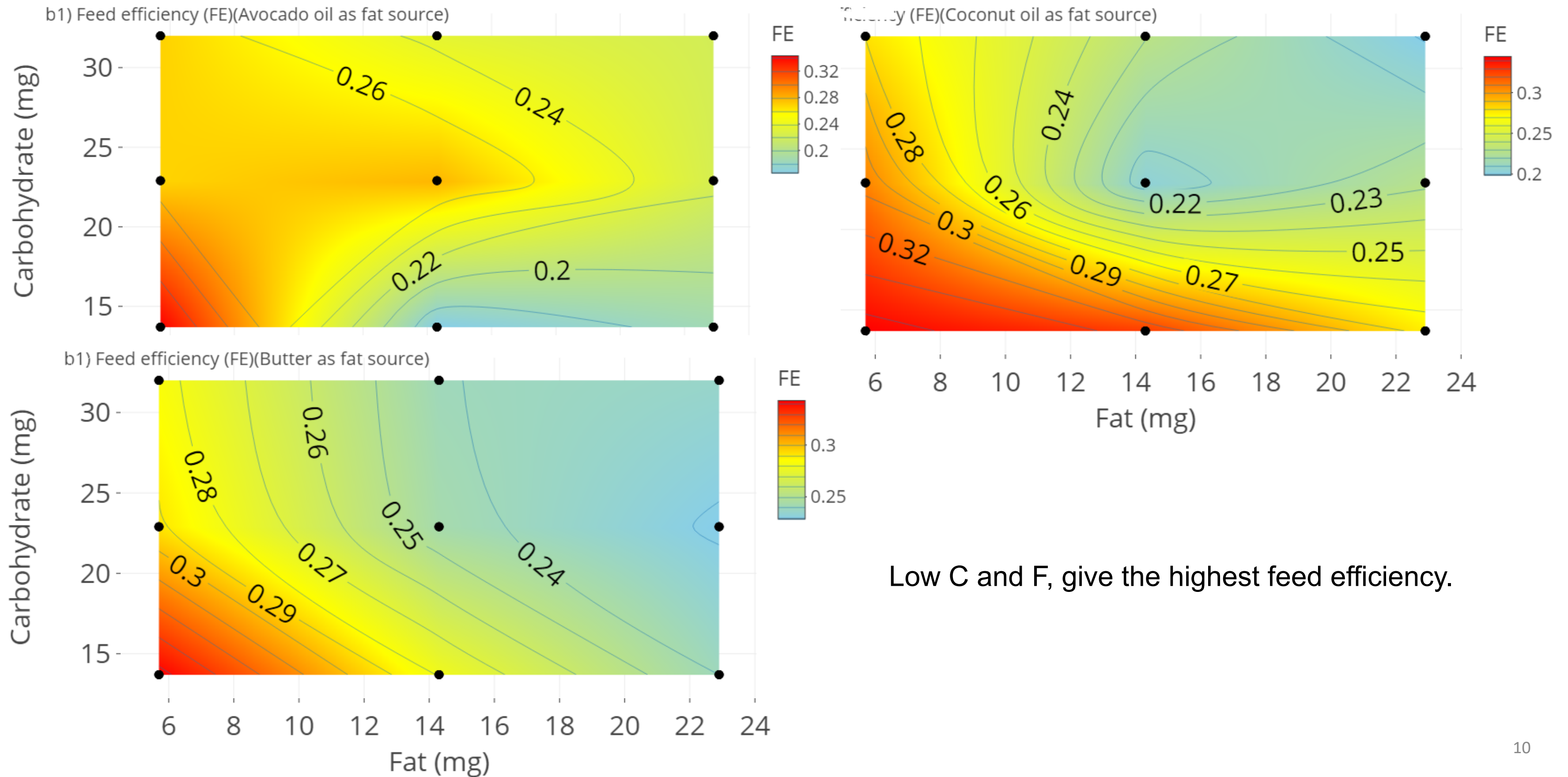


# Survival



Does coconut fat lead to cannibalism?

# Feed efficiency



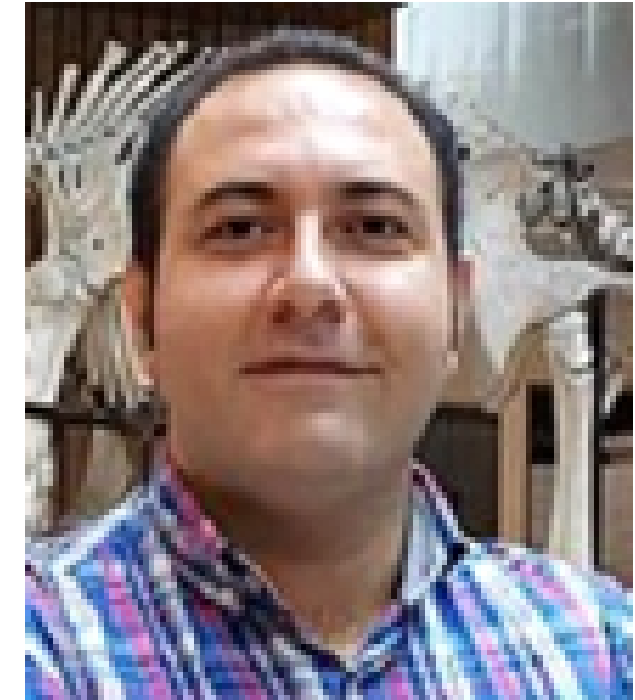
# Summary

- Yield
  - Butter > Coconut fat > Avocado oil
  - Coconut fat is the best replacement for carbs in the BSF diet. However, Butter and avocado can also to some extent replace Carbs.
- Survival
  - Low C levels negatively impacted larval survival
  - Butter has the most negligible impact on survival
  - Coconut fat displayed a significant impact on survival, likely due to the stimulation of cannibalism
- Feed efficiency
  - Low C and F, give the highest feed efficiency.
  - Increased levels of both C and F resulted in lower feed efficiency.

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**Thanks for listening!**