

Addressing variability in *Hermetia illucens* bioassays: have all the key species-specific parameters been identified?

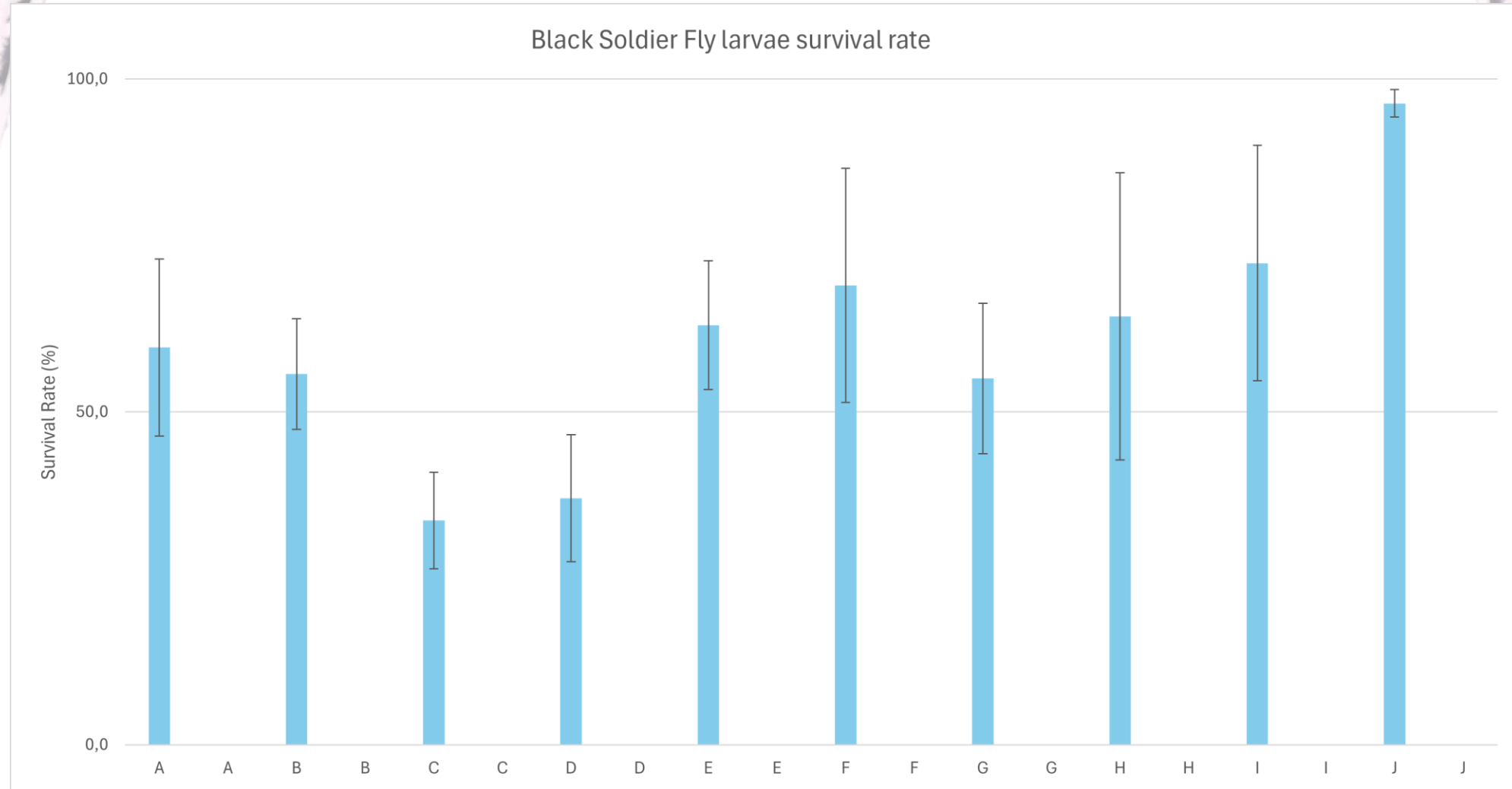
Carpentier J., Jullien Z., Lutten Schlager H., Ferrara D., Deville N., Anglicus A.,
Francis F. & Caparros Megido R.

8 – 10 September 2025
Cambridge, UK

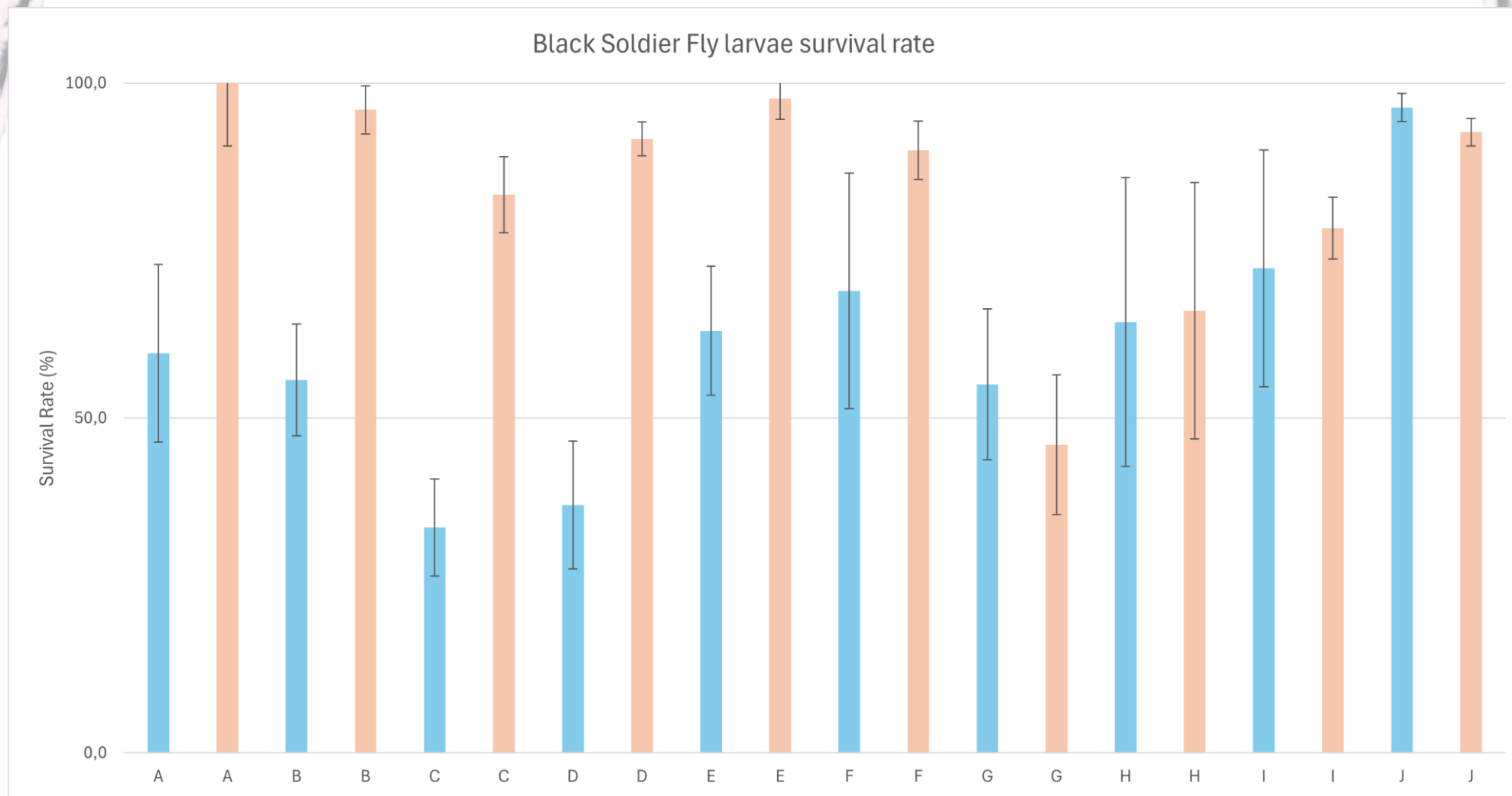


Joachim Carpentier

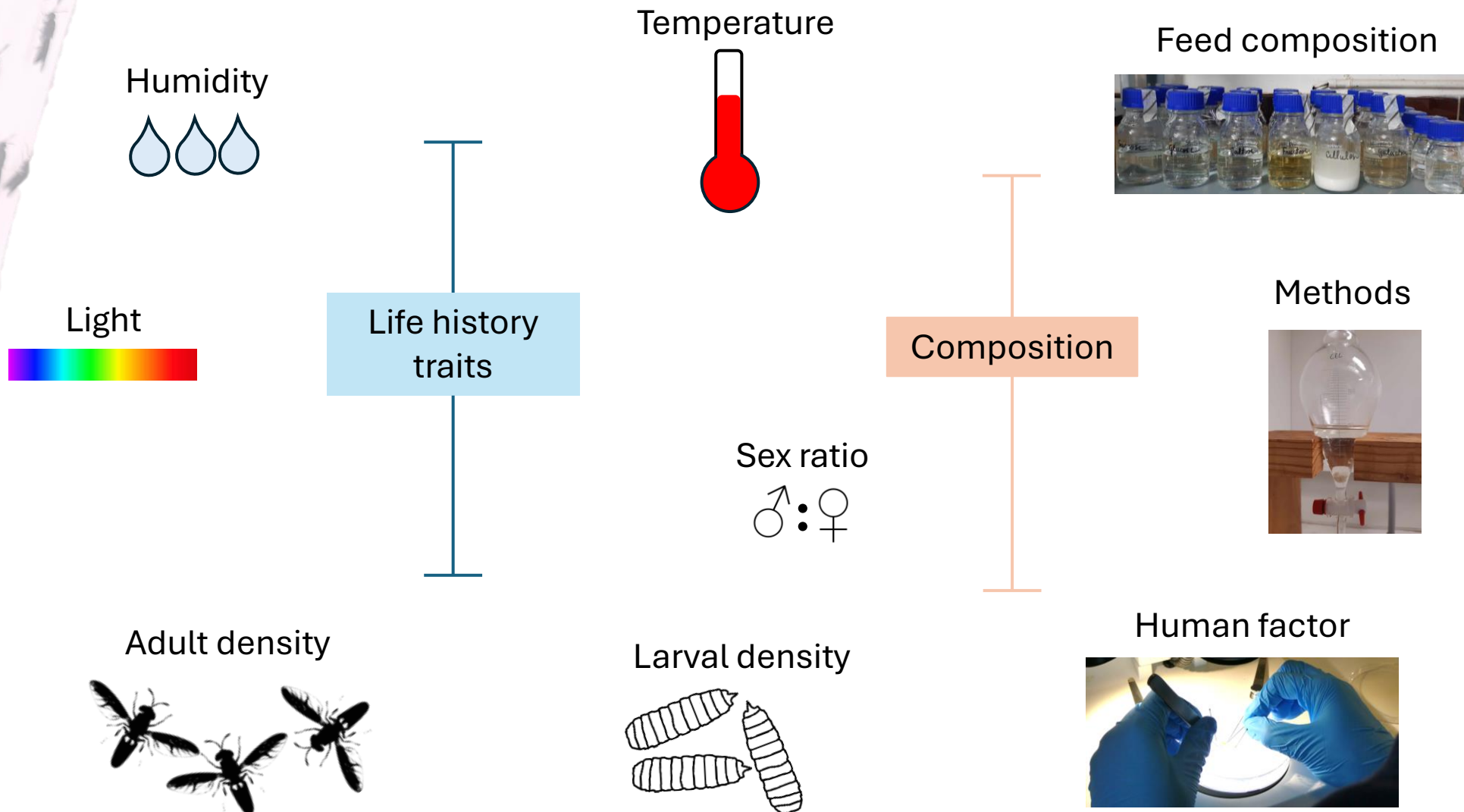
A Nightmarish Experiment:



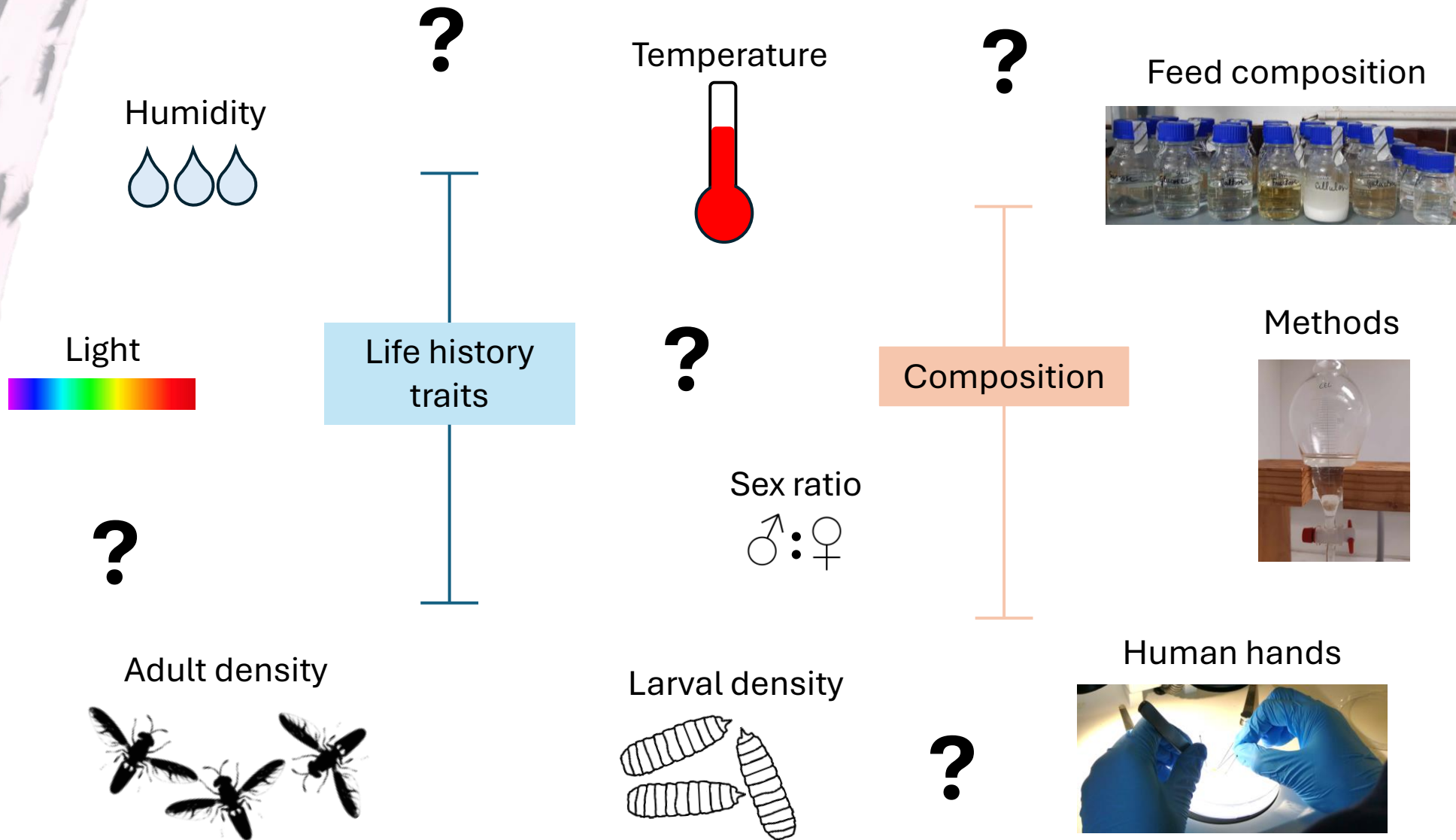
A Nightmarish Experiment:



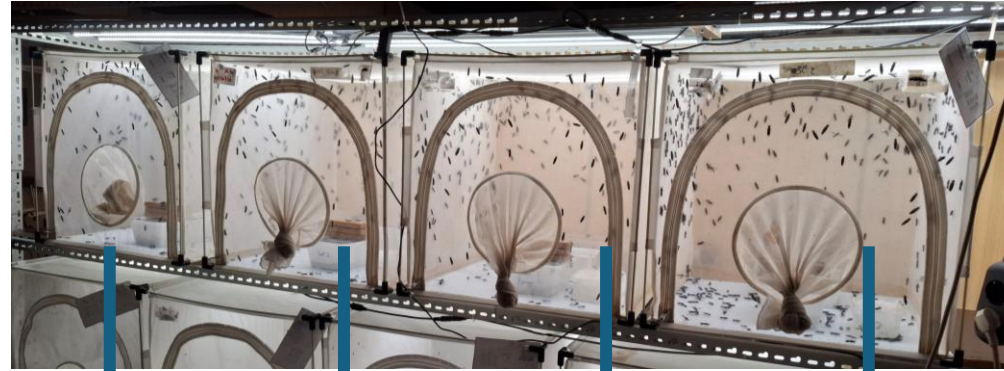
Where does this variability come from?



Where does this variability come from?



What about oviposition day?



Breeding density = 6500 flies/m³ (*)

Daily egg collection



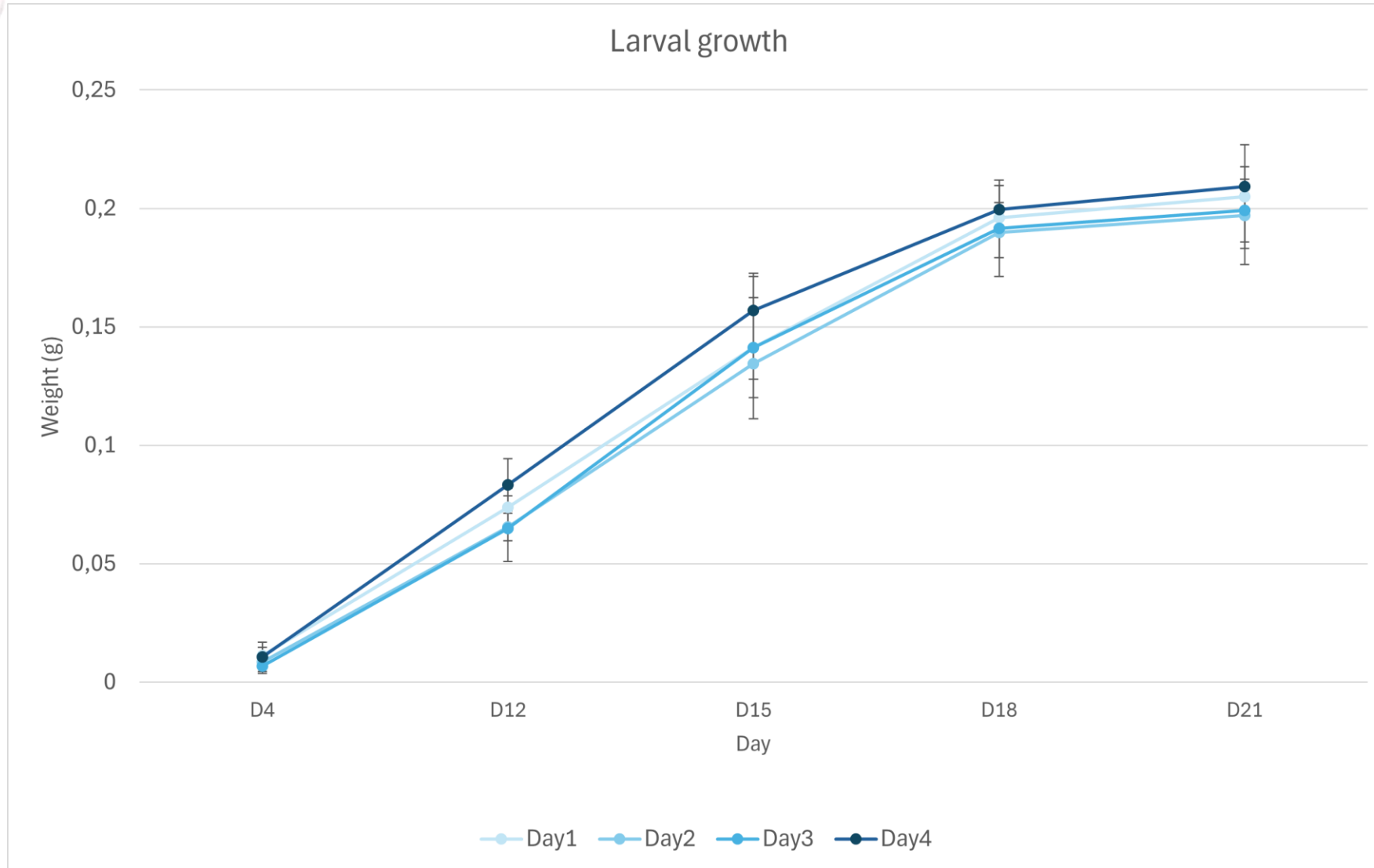
Incubation and growth

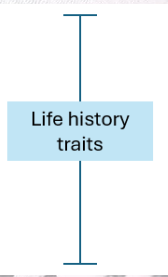


Survival and sex ratio

(*) Hoc B, Noël G, Carpentier J, Francis F, Caparros Megido R (2019) Optimization of black soldier fly (*Hermetia illucens*) artificial reproduction. PLoS ONE 14(4): e0216160. <https://doi.org/10.1371/journal.pone.0216160>

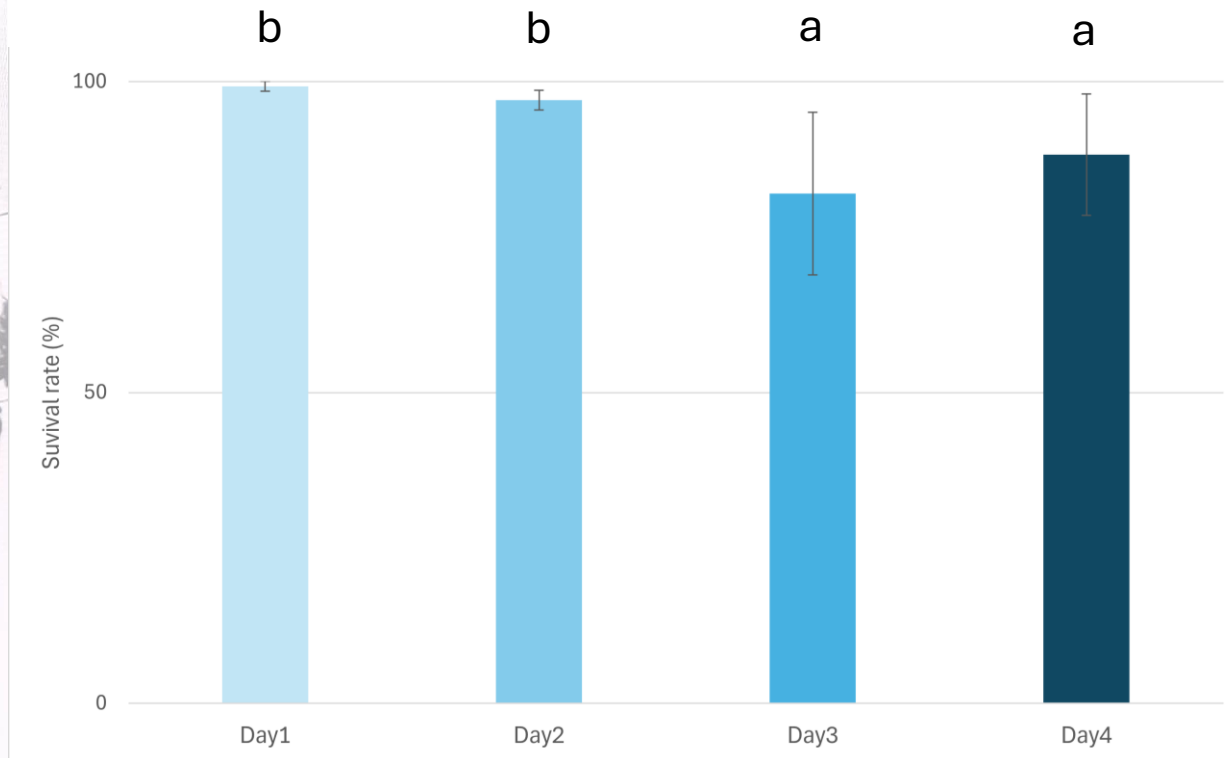
What about oviposition day?



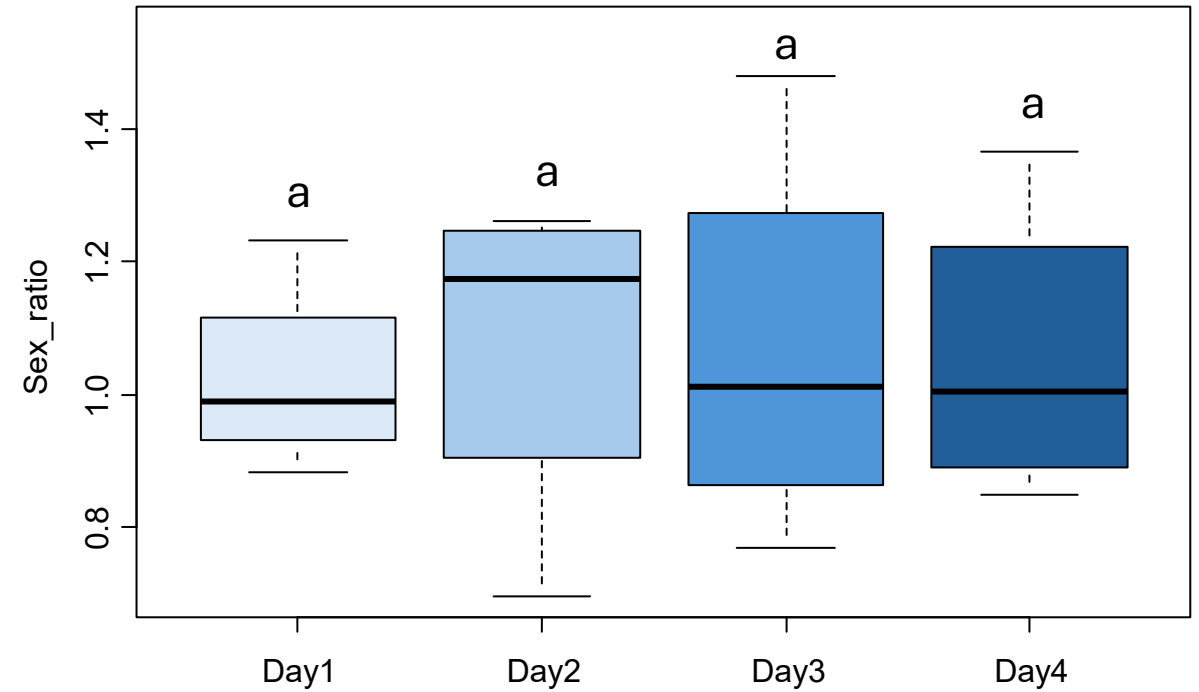


What about oviposition day?

Survival rate



GLM: $\chi^2=112.86$, $df=3$, $p<0,001$



LM: $F_{(3,12)}=0,037$, $p=0,99$

What about the gut content?



Empty gut



Full gut

Composition

What about the gut content?

Control

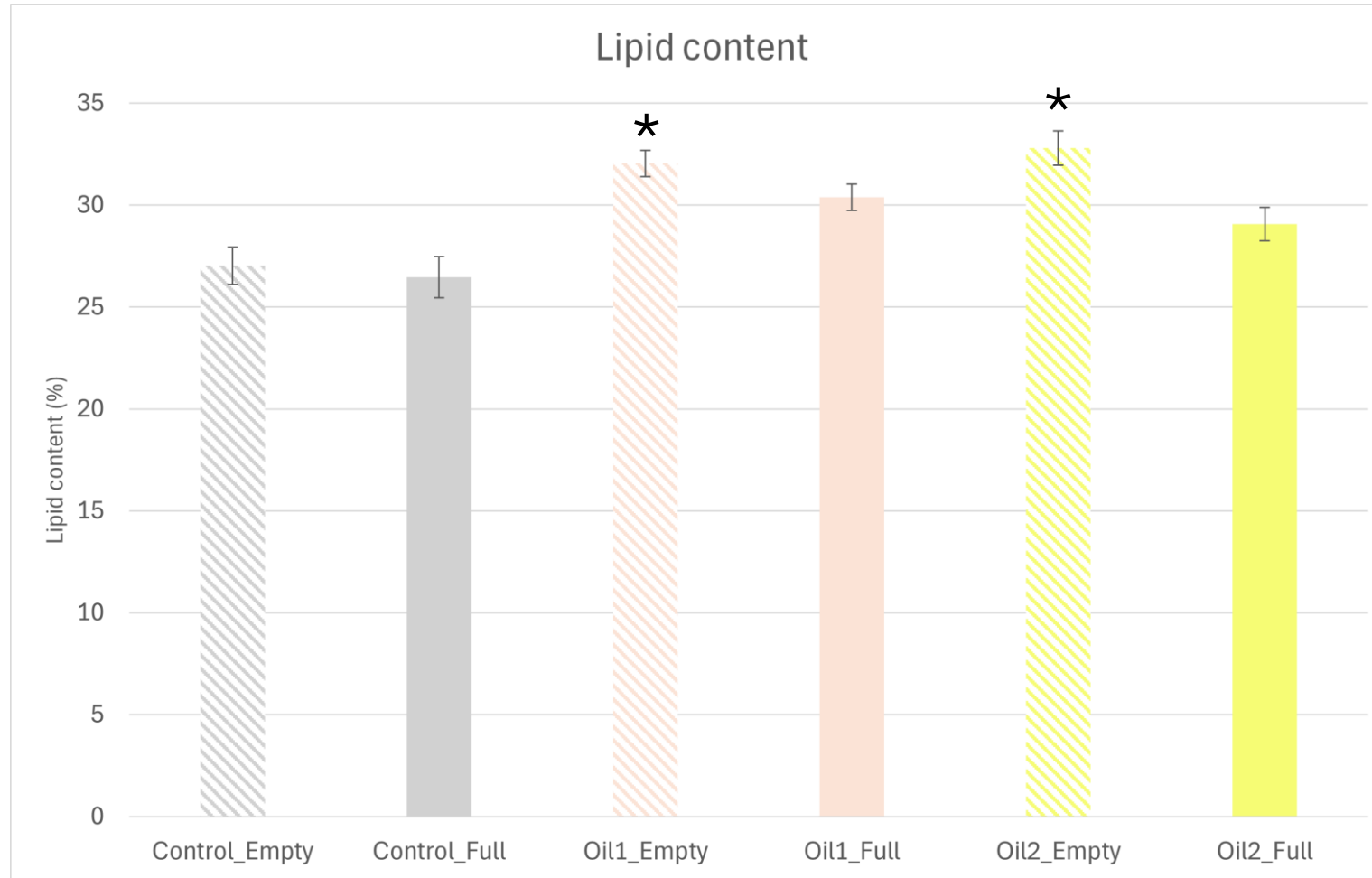
Oil 1

Oil 2

Lipid content

Fatty acid
profile

What about the gut content?



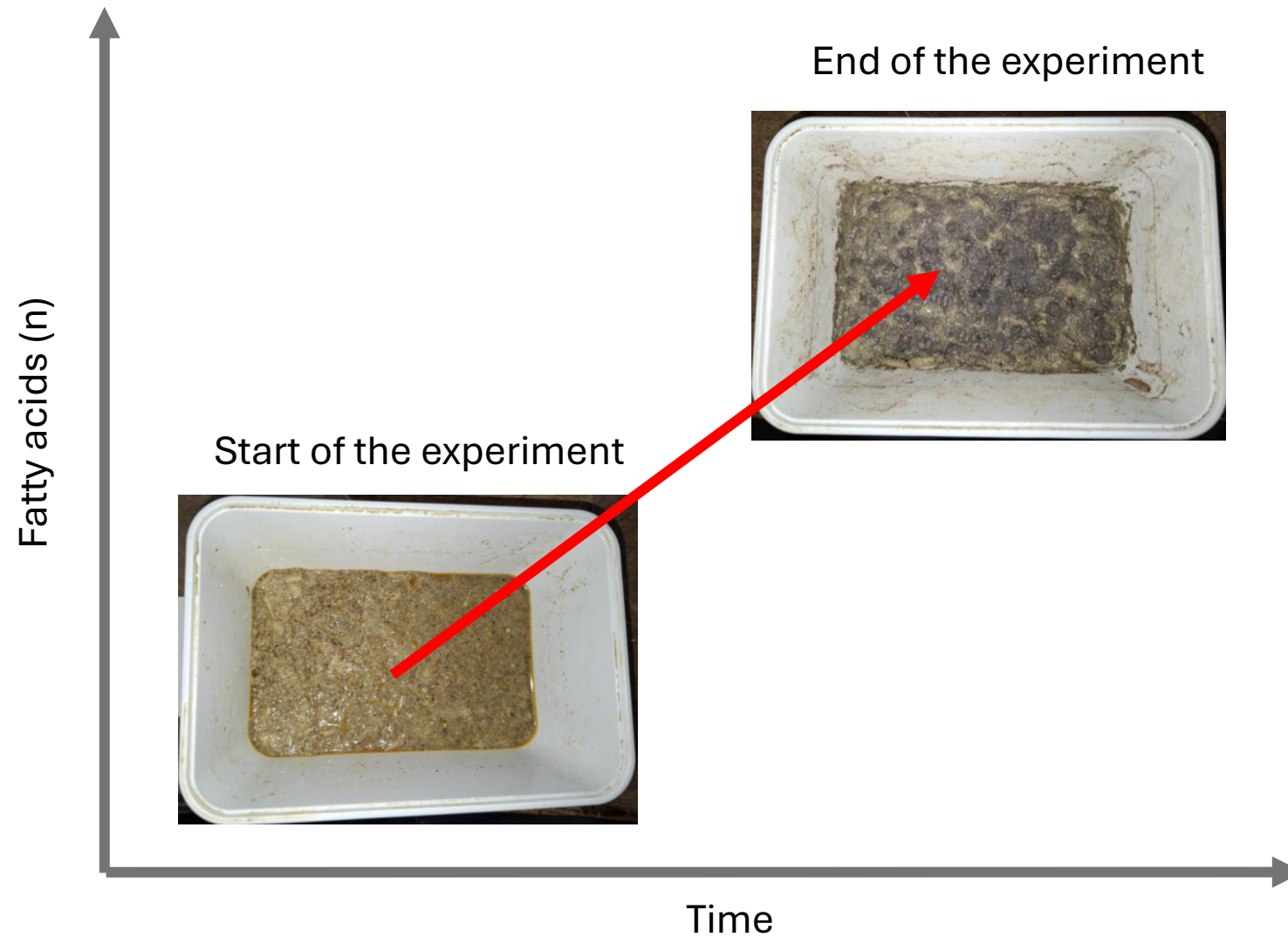
Control: Welch t-test, $t(3.4) = 0.57$, $p = 0.60$

Oil1: Welch t-test, $t(4.3) = 2.81$, $p < 0.05$

Oil2: Welch t-test, $t(4.4) = 4.95$, $p < 0.05$

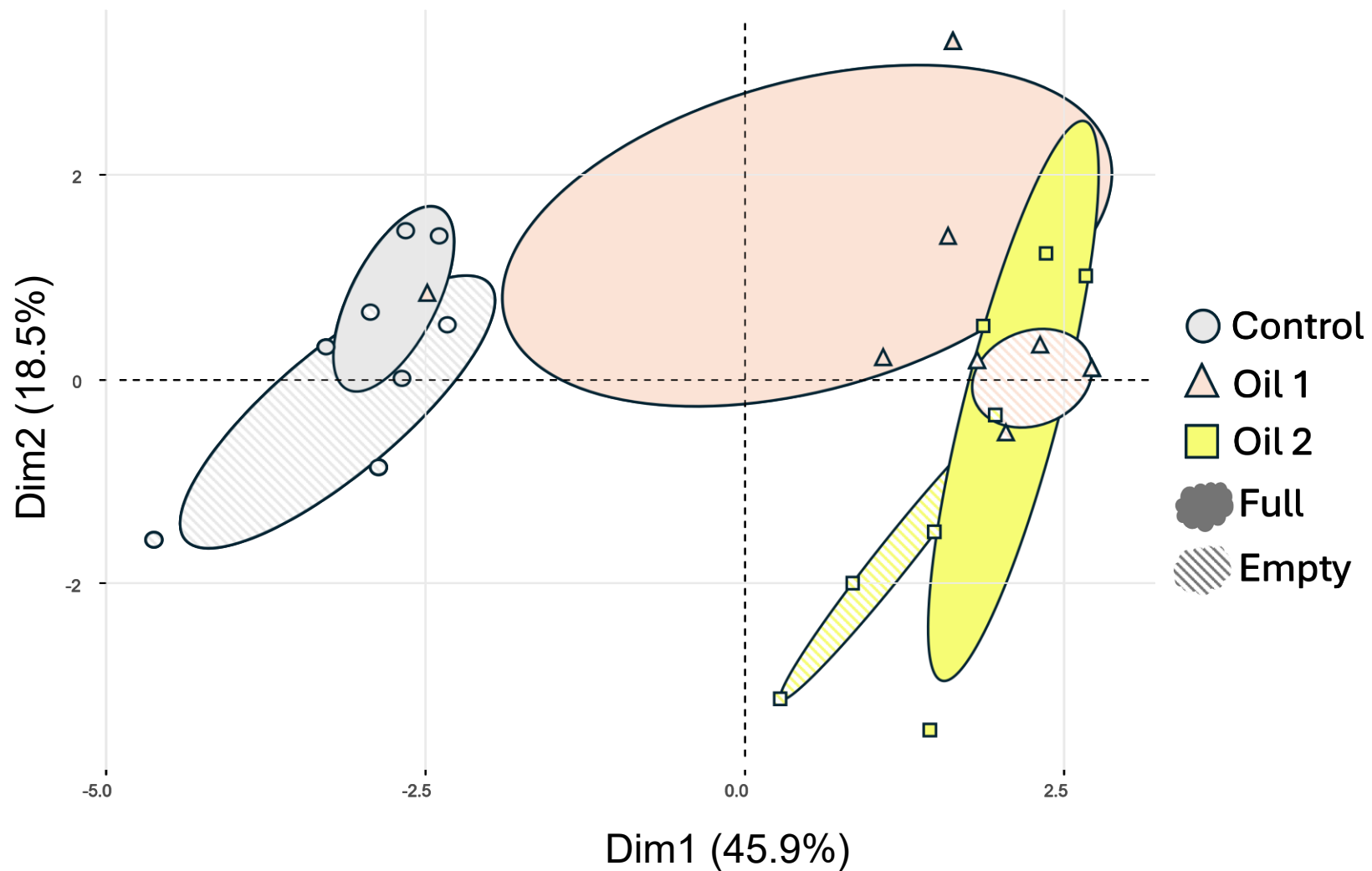
What about the gut content?

Temporal diversification of dietary fatty acid profiles



Composition

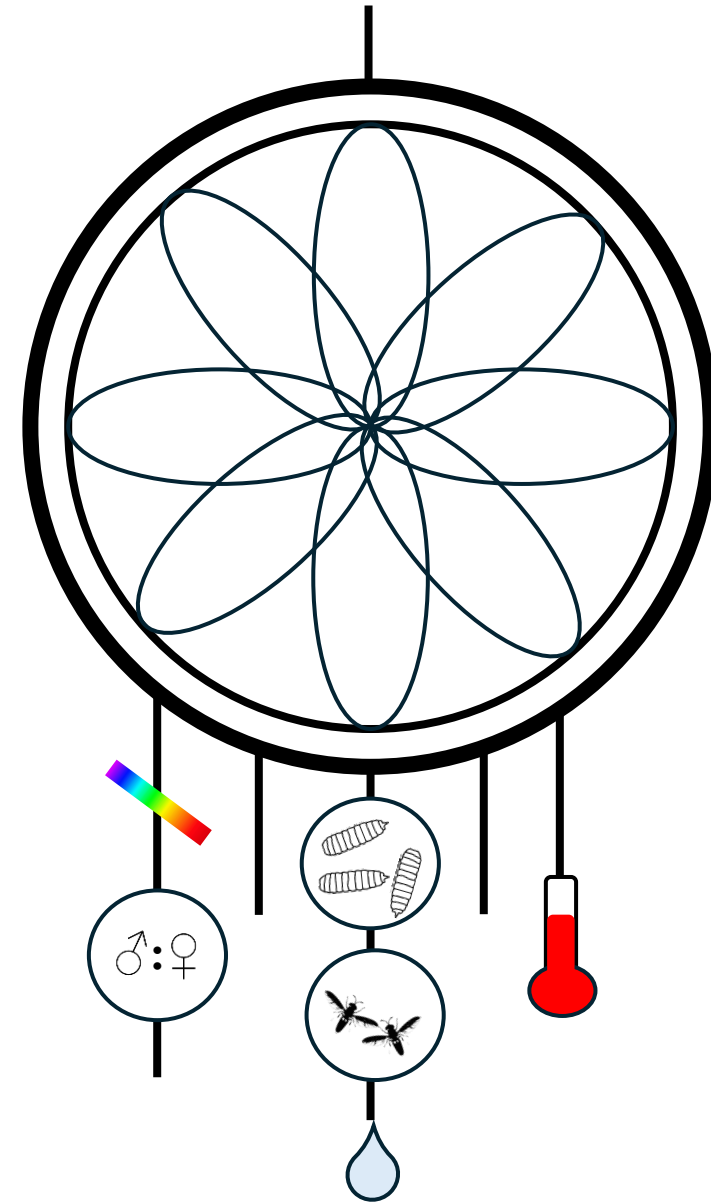
What about the gut content?



So, what about you?

Life history
traits

Composition



What beads will you add to
your dreamcatcher?

Our edible insect team:

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Zoé Jullien



Emilie Bera



Nicolas Deville



Hugo Luttlenschlager

Pr. Francis



Aymeric Anglicus

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