

What synchronization efforts are worth the investment in mass insect rearing facilities.

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# Who are we?



Formerly: **milliBETER**<sup>®</sup>

Now part of:  **INSECT  
TECHNOLOGY  
GROUP**

Together with : **AgriProtein**



# Stable mass production

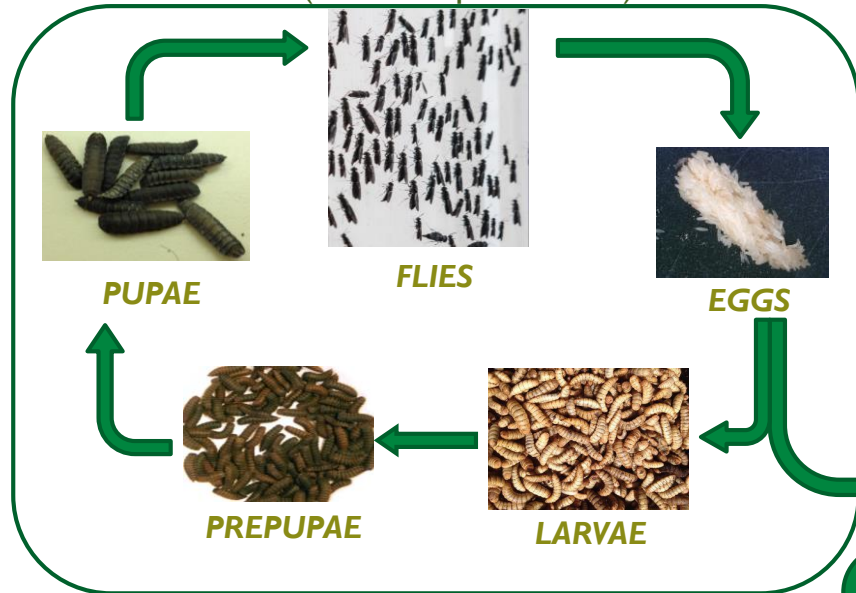
Black Soldier Fly is a **highly adaptable species**.

In order to ensure a predictable production process,  
**reduction in variation of quality and quantity of your output** is key.

Controlling the **timing of your output** is  
fundamental to achieve a reliable production process.

# Fly Room and Nursery

(Neonate production)



# Grow Out

(Larvae production)



# Processing

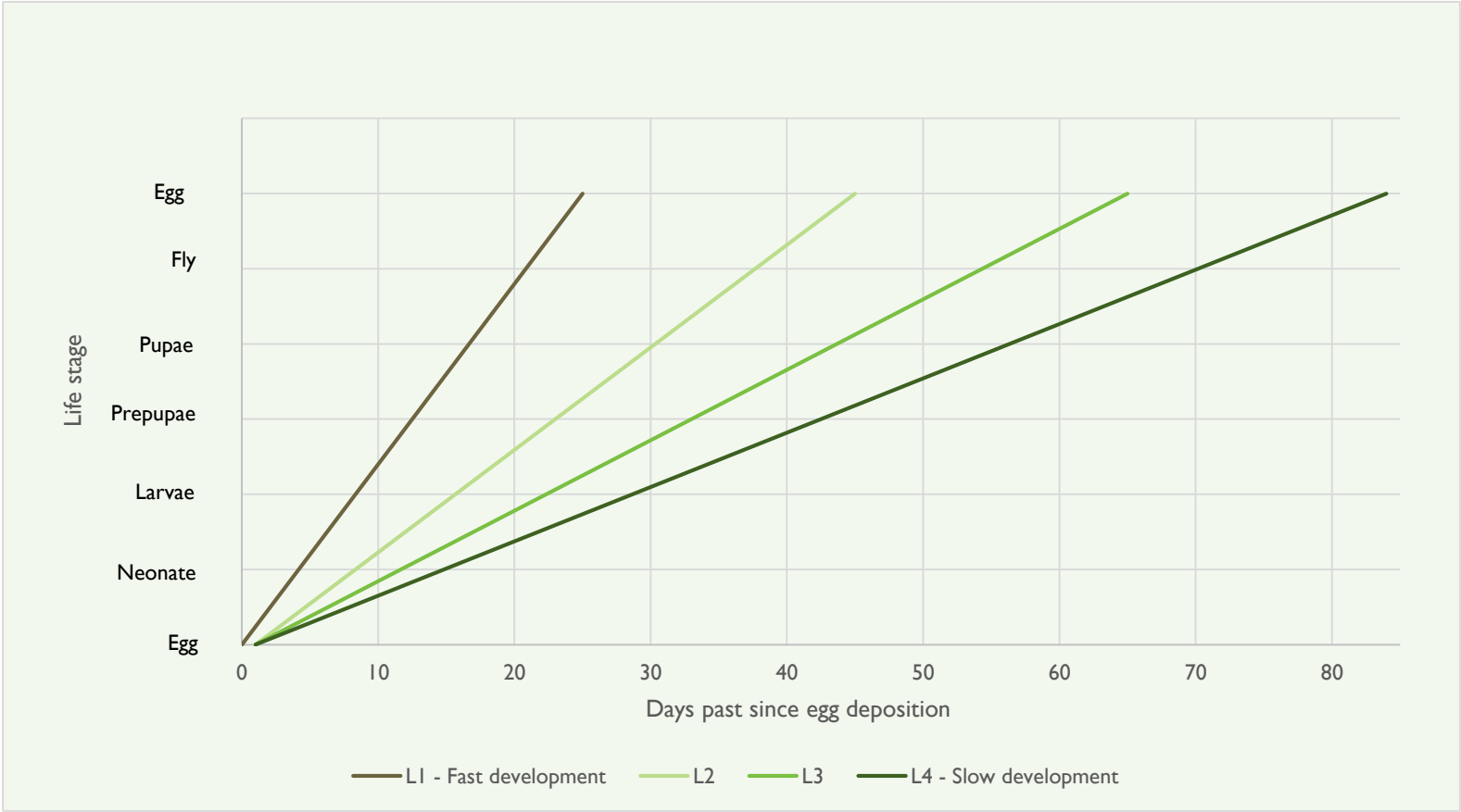
BSF products:

- BSF protein
- BSF lipids
- BSF chitin
- Frass

# Feed Plant

Waste streams → BSFL Feedstock

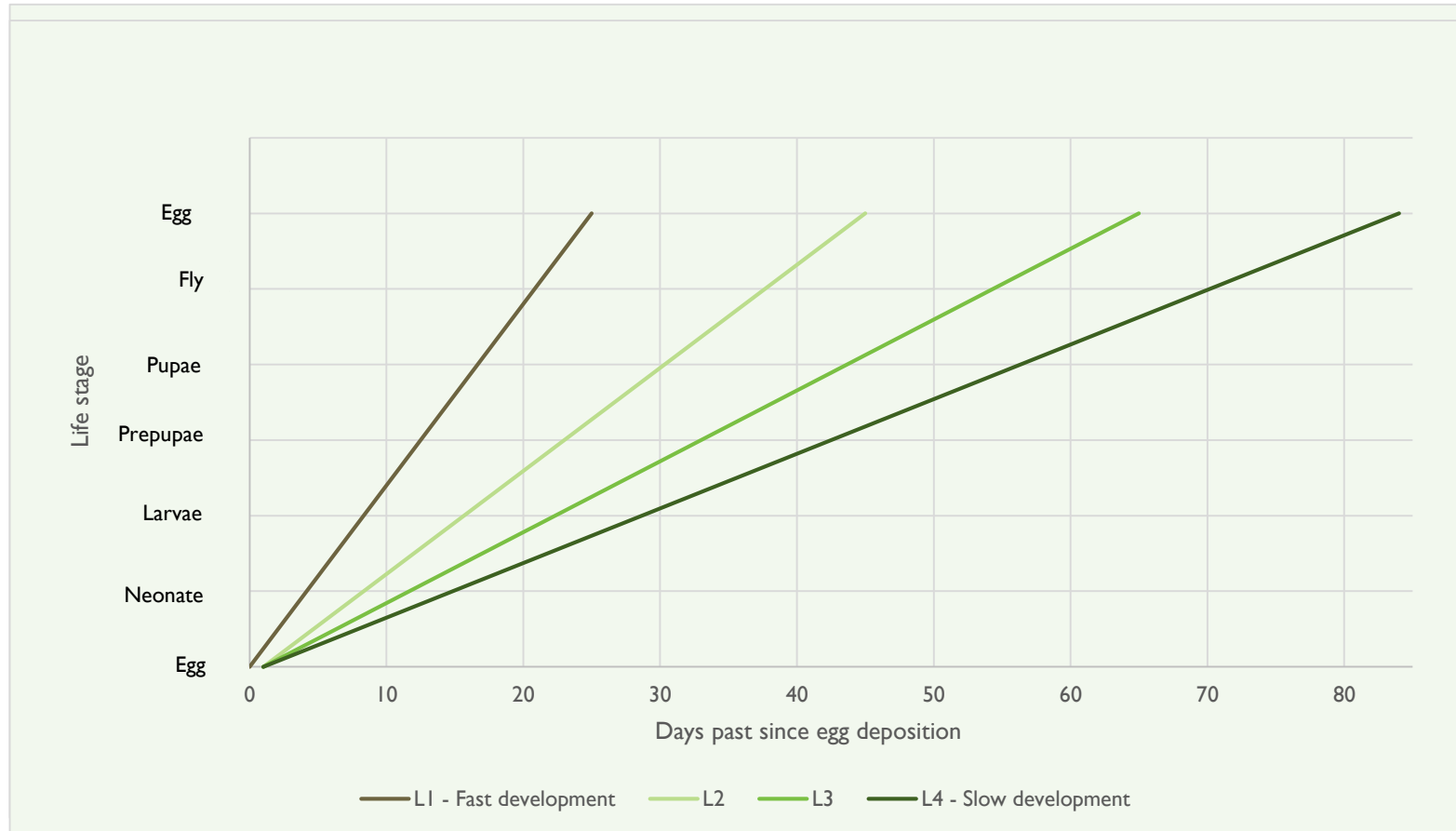
# Effect of time lags in BSF life cycle



2 factors lead to an effective synchronization:

1. Constant development
2. Working with biological -not “calendar”- age

# Step I: constant development



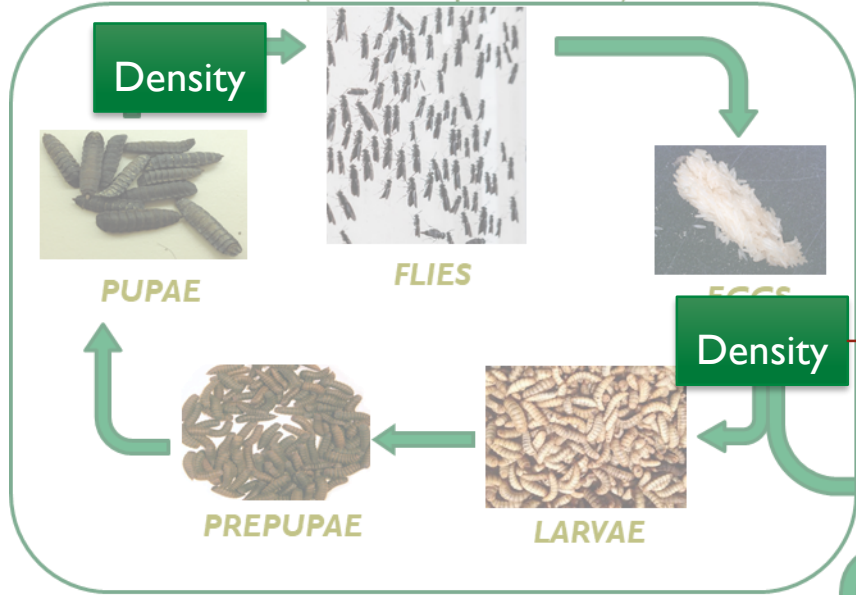
**HOW? Control the environment**

# Control the environment

Light

## Fly Room and Nursery

(Neonate production)



Temperature  
Relative humidity

## Grow Out

(Larvae production)



LARVAE

O<sub>2</sub> saturation  
Saturation of VOC

Feedrate  
Feed quality

## Feed Plant



### Light type and timing

High and constant mating rates  
Controlled egg hatch

### Expansive climate control

High and constant survival and mating rates  
Uniform growth

### Automated neonate counter

Accurate starting number/bin

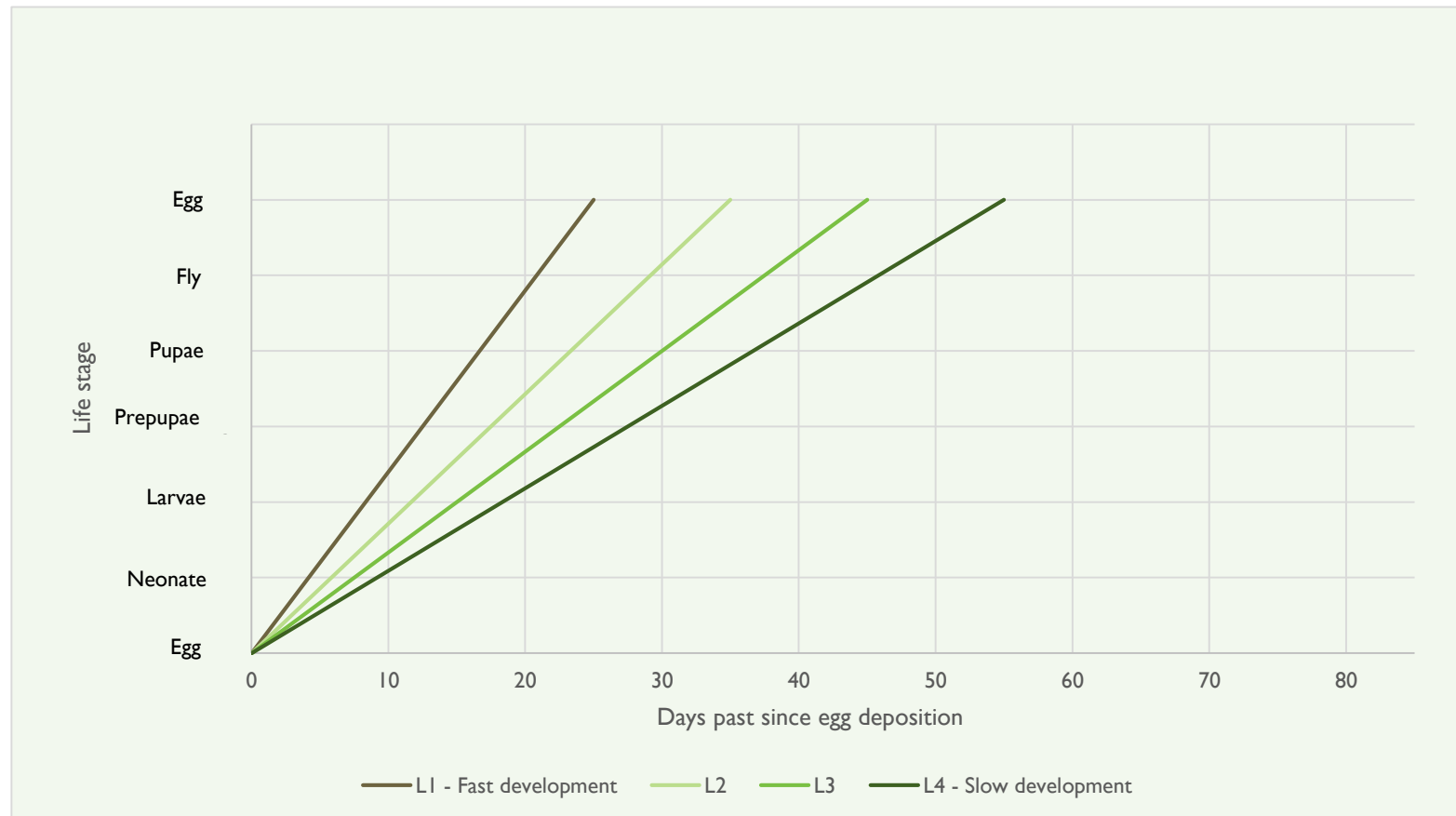
### HVAC with even bin ventilation

Uniform growth rate and control escapers

### Known and controlled feedstock

Uniform and high growth rate

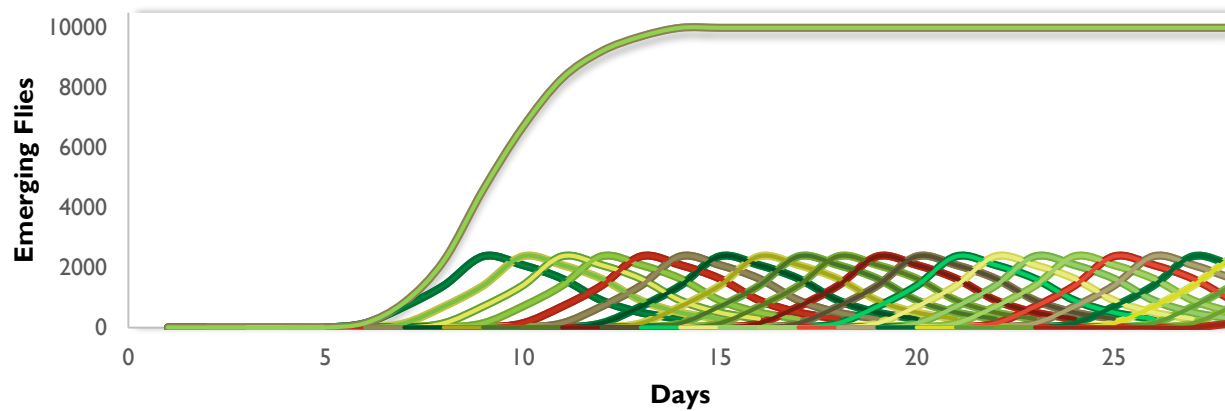
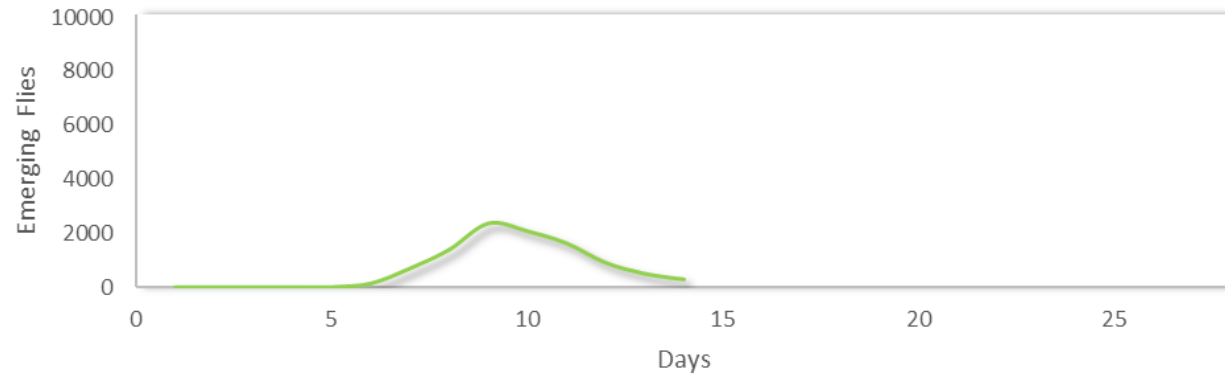
## Step 2: Working with biological -not “calendar” age



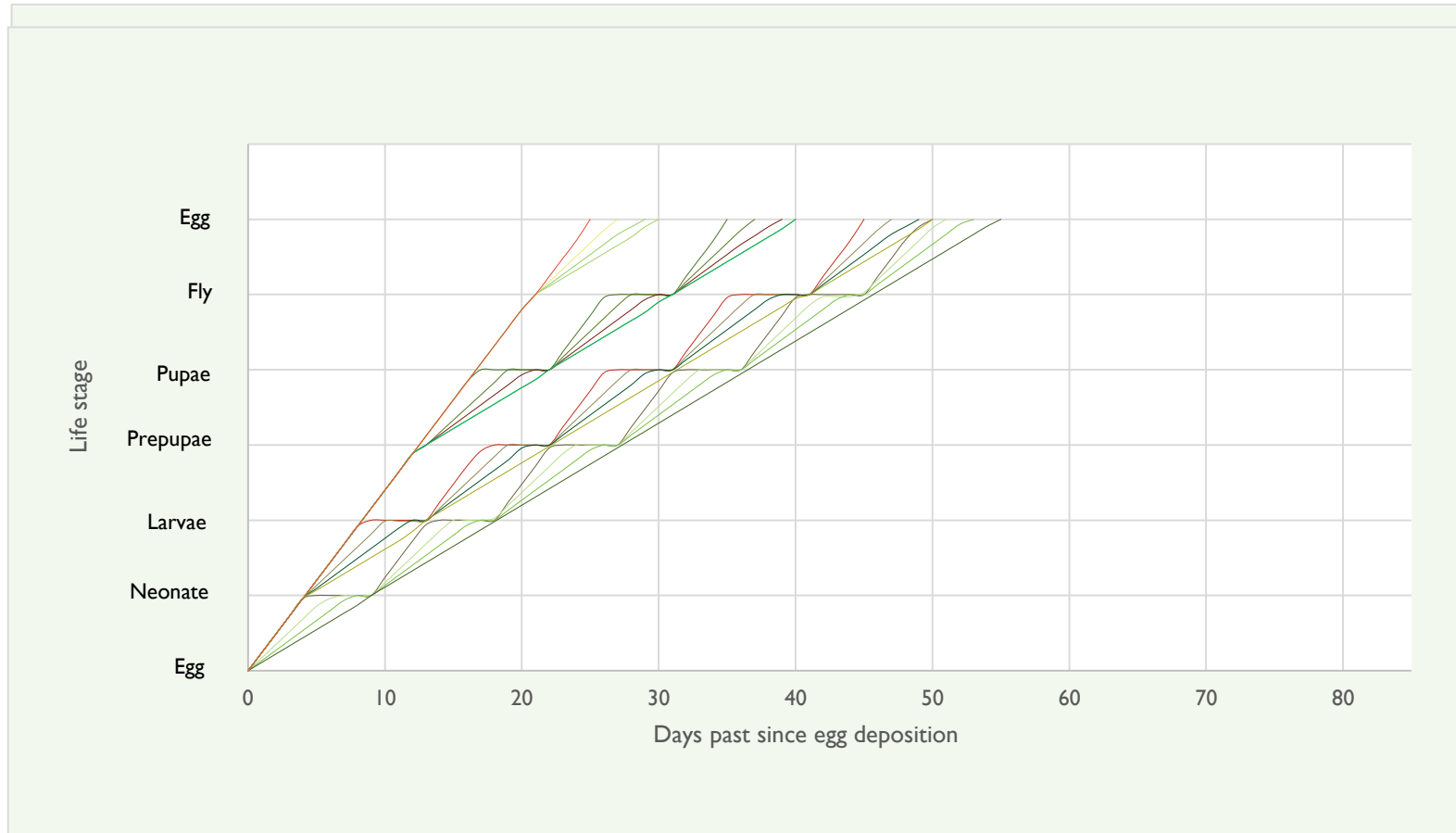
**HOW? Add separation steps into your production process**



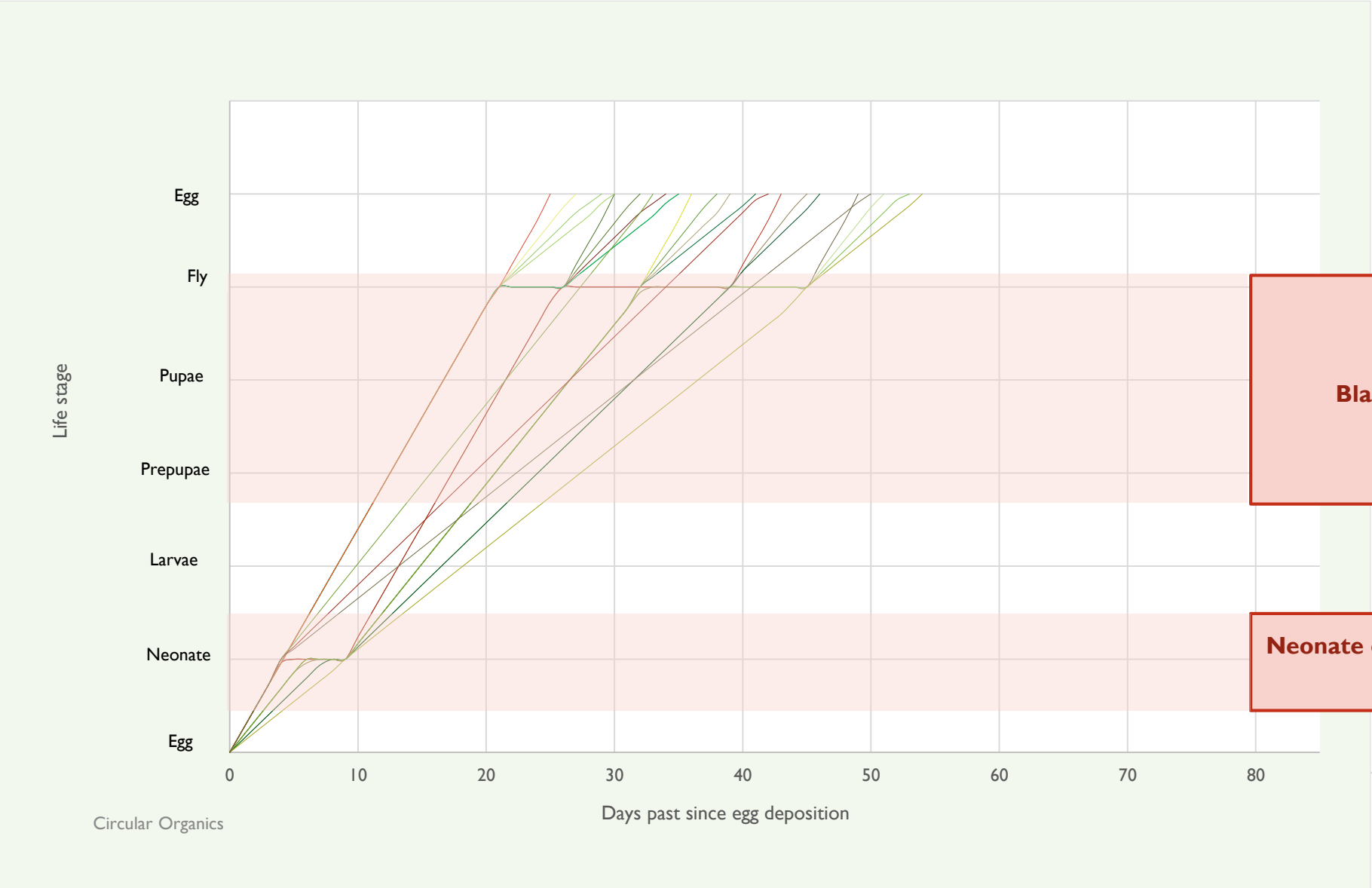
## Step 2: Working with biological -not physical- age



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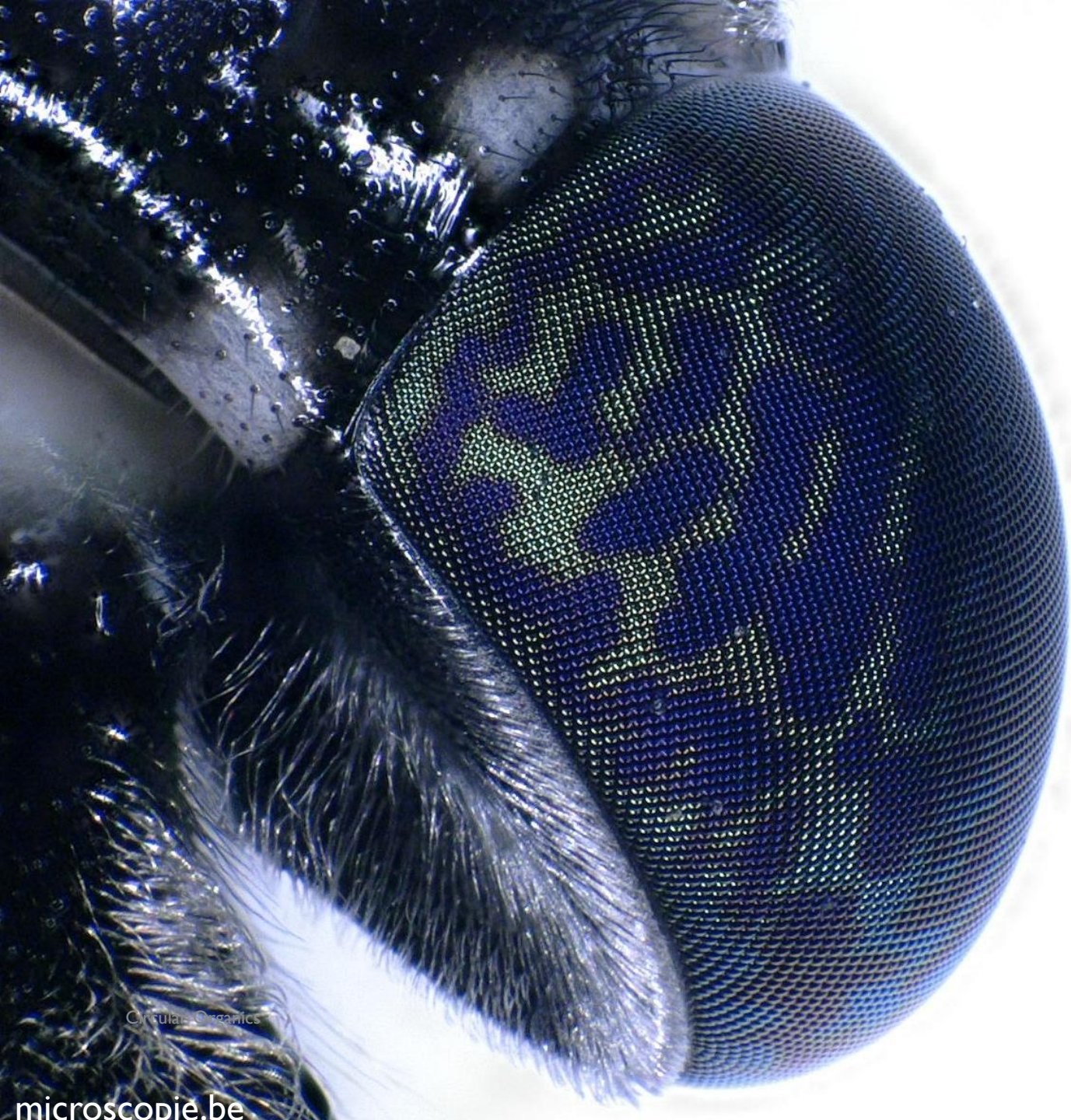


# Step 2: Working with biological -not physical- age

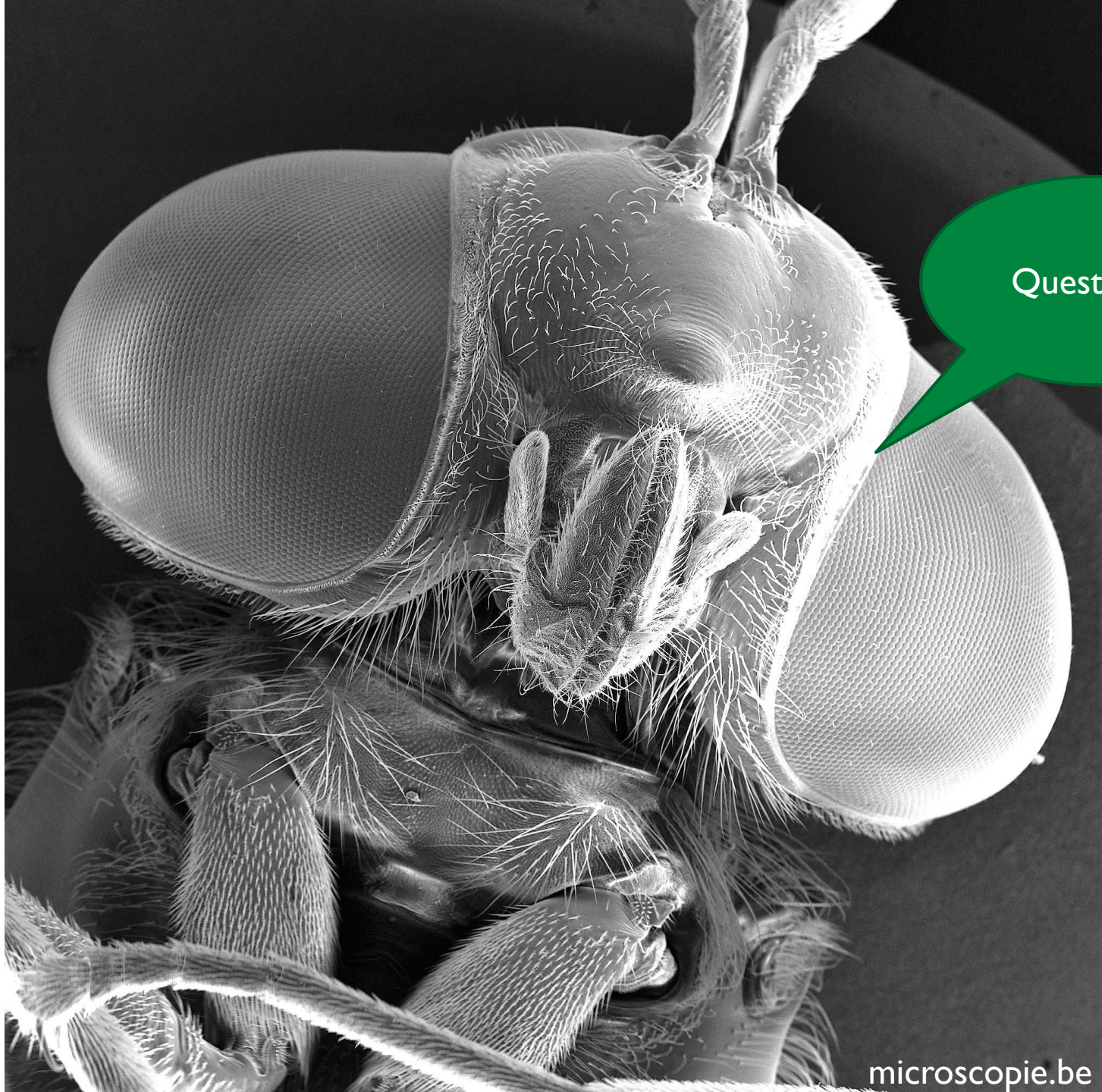


**Black Box:** Separation at fly stage

**Neonate counter:** Separation at neonate stage



Thanks!



Questions?