



MARULA  
PROTEEN  
LIMITED

*organic waste to animal feed*

Cleaning Cities, Feeding Millions, Employing the Future

*Tommie Hooft, Philipp Straub, Martin Tenywa*

# Trash-to-Cash in Kampala, Uganda

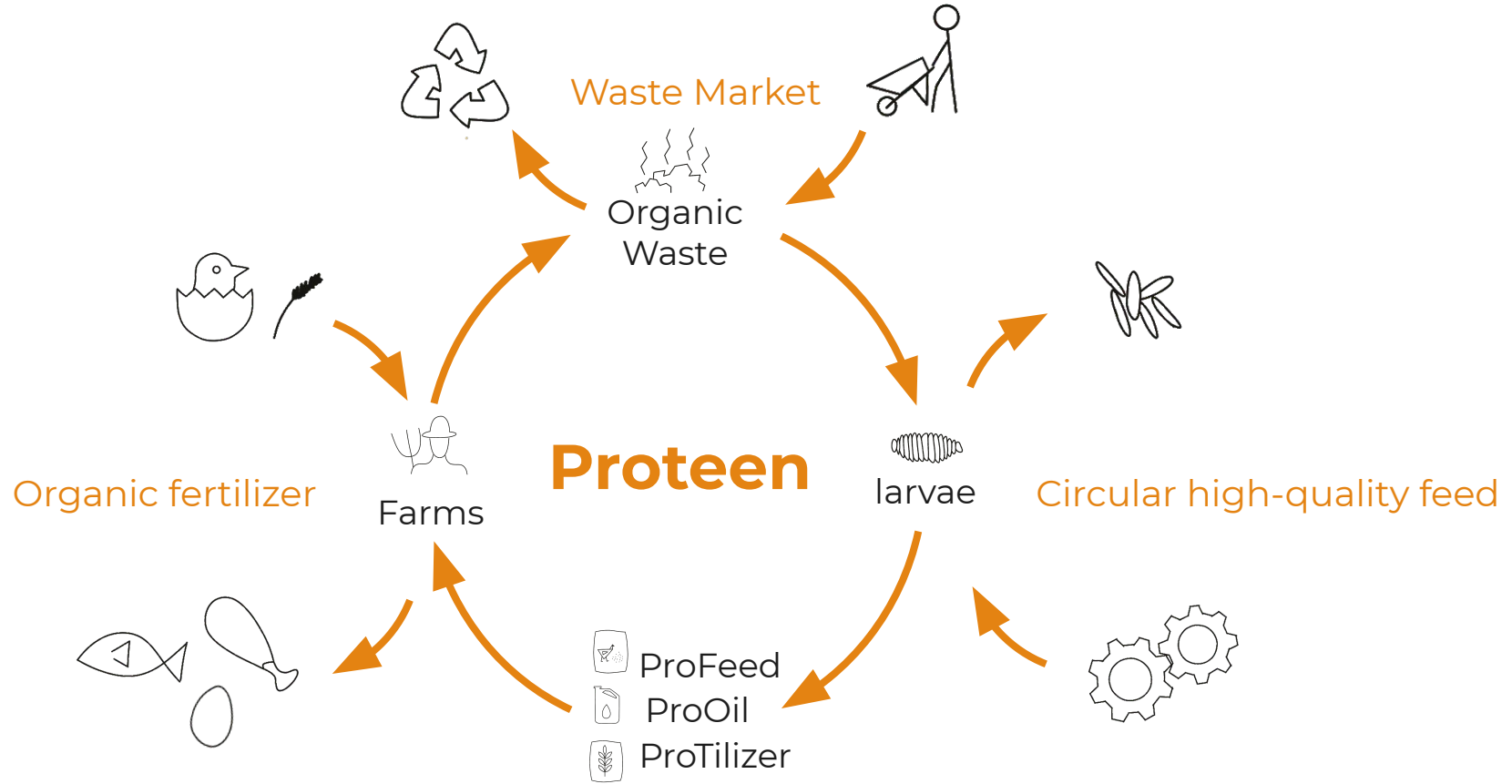
We feed urban organic waste to insects, which are processed into a high-quality livestock feed. The insects leave behind a valuable fertilizer.



## 3 Problems

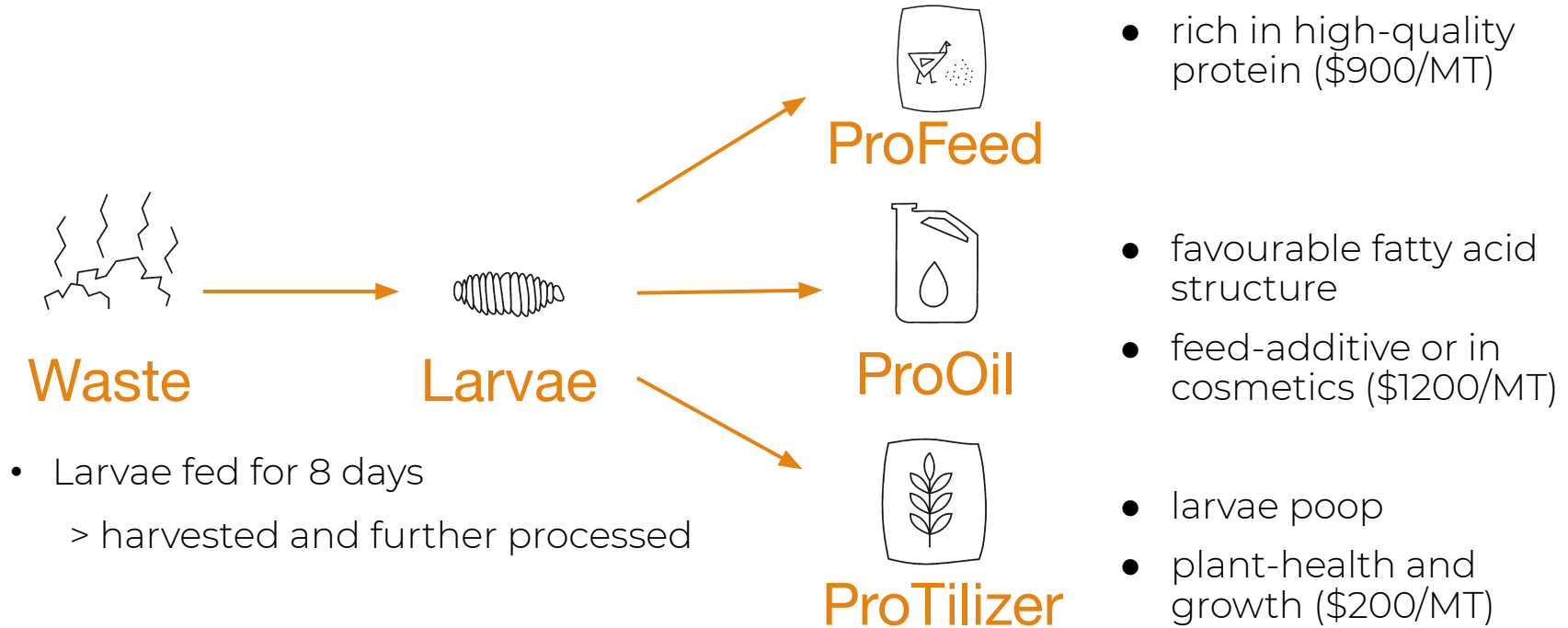


# CIRCULAR SOLUTION





# OUR SOLUTION



# WHAT IS BLACK SOLDIER FLY



# BLACK SOLDIER FLY LIFE CYCLE

**1. Adult**  
2 week life-span  
Females lay 500 eggs



**2. Egg (5 days)**  
Hatching occurs after 1 day until day 5. **baby larvae** are then fed organic waste



**3. Larvae (8 days)**  
Consume waste with amazing speed, converting it into body mass



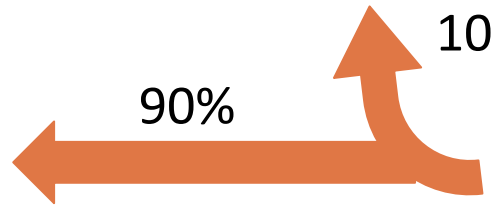
**4. Pupae (14 days)**  
The larvae stop eating and turn into pupae.  
Waiting to emerge become flies



**5. Processing**  
Final product

90%

10%



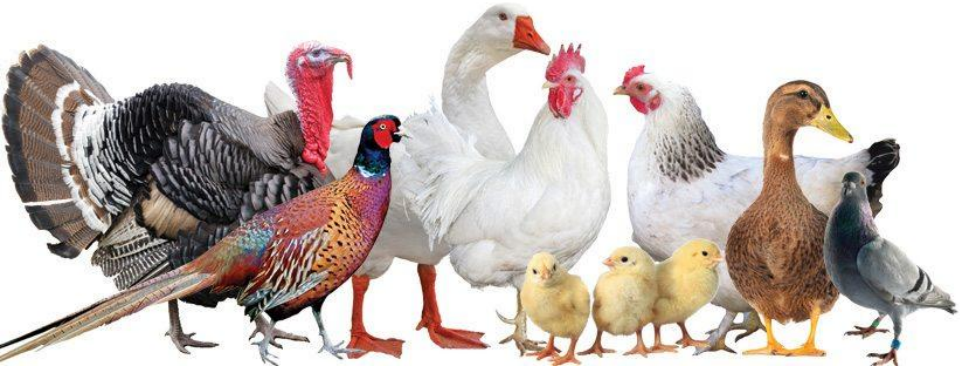


# WHAT EATS THE BLACK SOLDIER FLY LARVAE

Piggery



Poultry



Fish



# ORGANIC WASTE (STEP-BY-STEP PROCESS)

1



2



3



4



5





## 1. Waste mixing



# REARING PROCESS

## 2. Baby larvae for inoculating



## 3. Crates with waste and 5-DOL



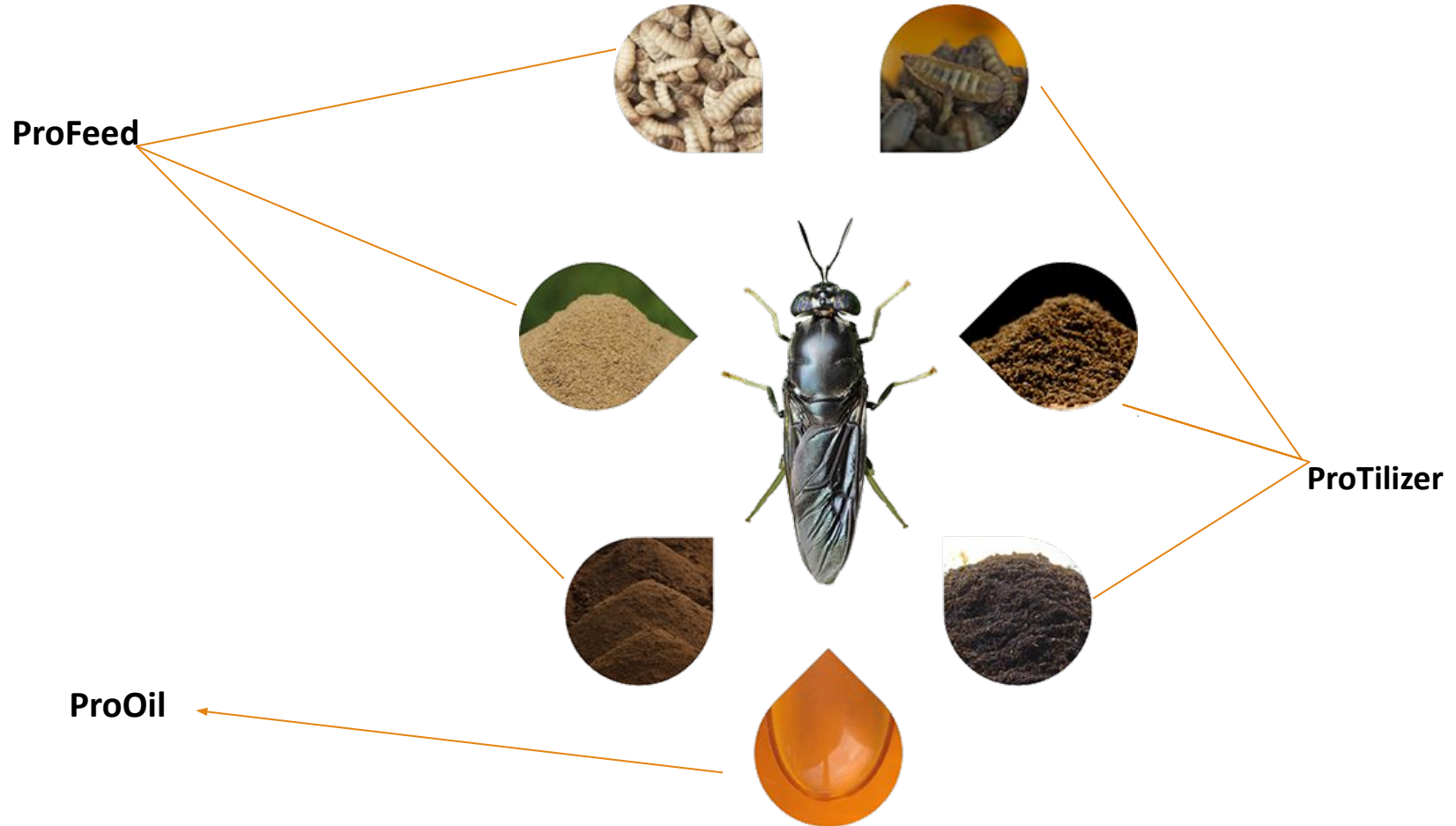
## 4. Harvesting after 8 days



## BREEDING AT THE “LOVE HOTEL” (OBTAINING THE 5-DOL)



# ZERO-WASTE PROCESS





# VALUE PROPOSITION (2 YEARS)

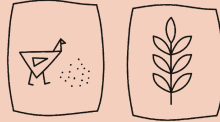


## **Citizens**

Healthier Communities



**Clean up 38,000 t  
of waste**



## **Farmers**

Productive Farms



**Feed 500,000 birds  
Fertilize 12,000 acres**



## **Youth**

Employed Youth



**Employ 2115 youth**



# TECHNICALLY FEASIBLE

- Municipal Waste Recycling Facility
- 500m<sup>2</sup> for pilot
- 20 youth employed
- 180t organic waste processed since Oct 2020
- 3T/day of waste → 10t/day → 25t/day



# GROWING MARKET: ANIMAL FEED

S.O.M  
\$1.2B

Ugandan feed  
deficit in 2020

S.A.M  
\$2B

East-African feed  
deficit in 2020

32k t/y

Demand BSF in  
Kenya

-37.5%

Cost reduction  
with BSF

# Our Team of Experts in Social Business, Agriculture and Insect Production

Tommie Hooft



Philipp Straub



Martin Tenywa



## CEO

Serial Entrepreneur  
in Uganda

## CTO

6-years of R&D on  
Insects for Food and  
Feed

## CPO

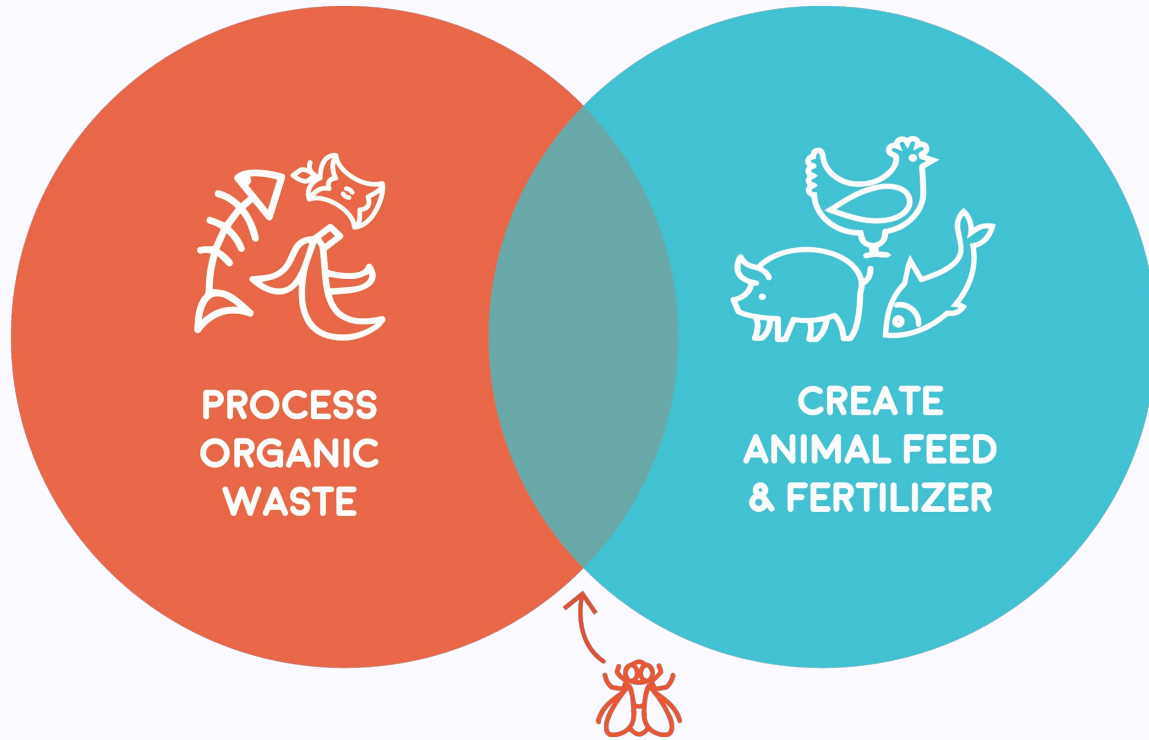
Local management  
on the ground





**This business is  
ready to fly!**

# Thank you!





# Impressions





# Impressions





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Visit: our documentary

<https://www.youtube.com/watch?v=wEgADbZmyXs&t=14s>



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