



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

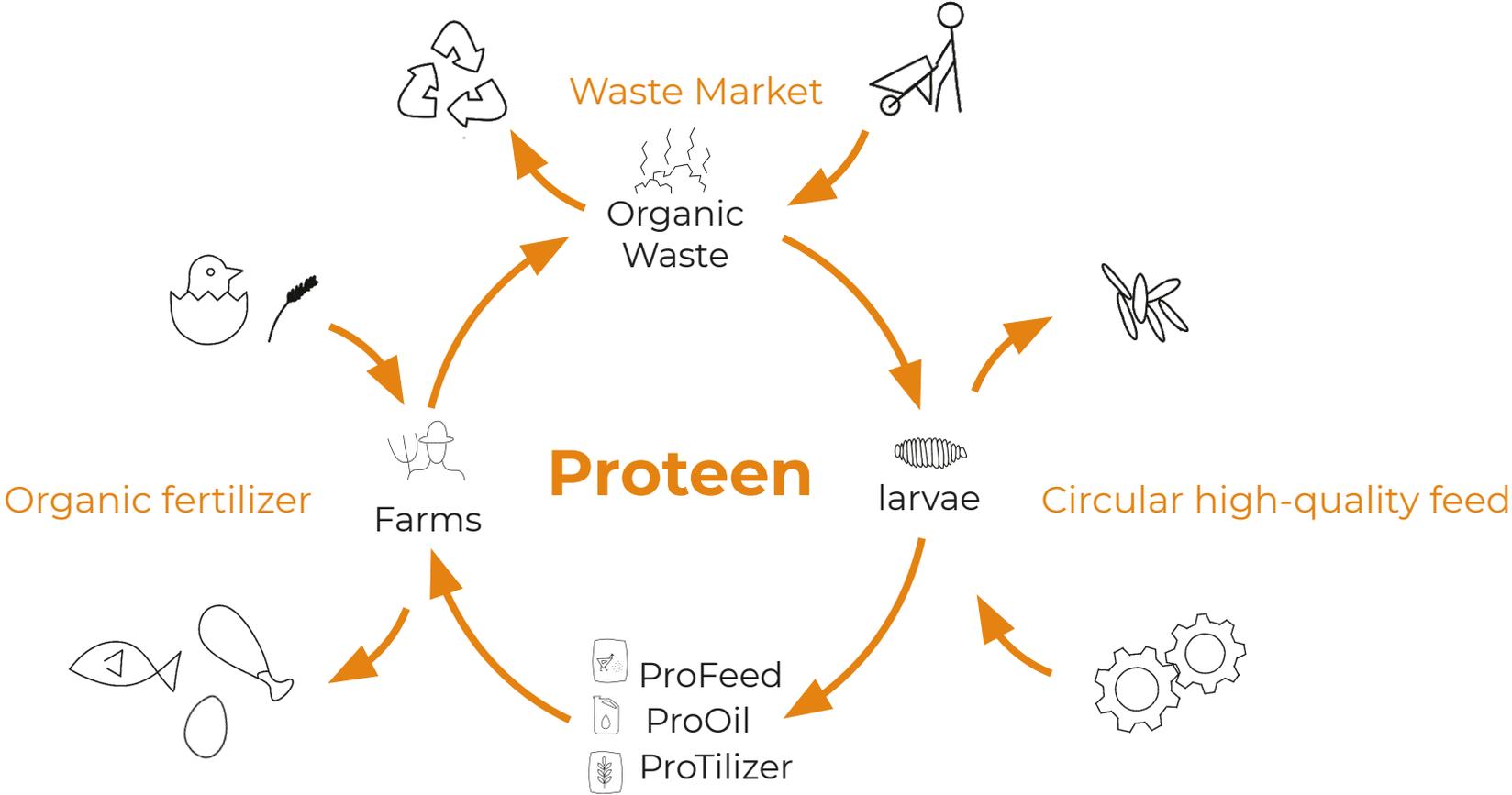
We feed urban organic waste to insects, which are processed into a high-quality livestock feed. The insects leave behind a valuable fertilizer.



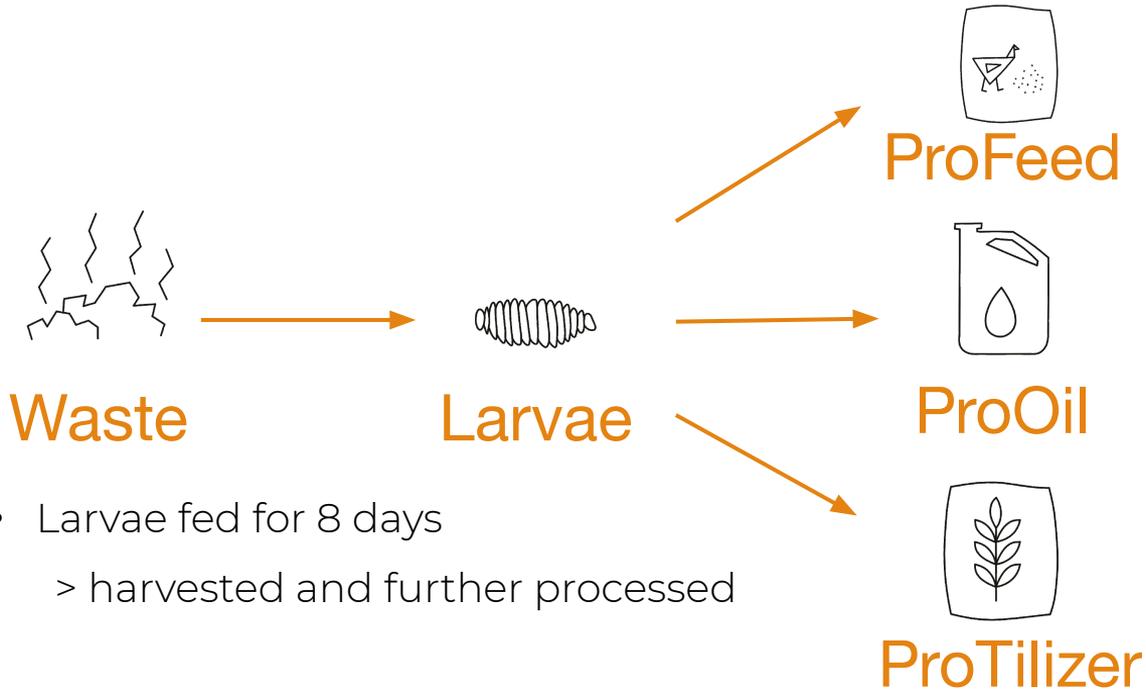
3 Problems



CIRCULAR SOLUTION



OUR SOLUTION



- rich in high-quality protein (\$900/MT)
- favourable fatty acid structure
- feed-additive or in cosmetics (\$1200/MT)
- larvae poop
- plant-health and growth (\$200/MT)

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

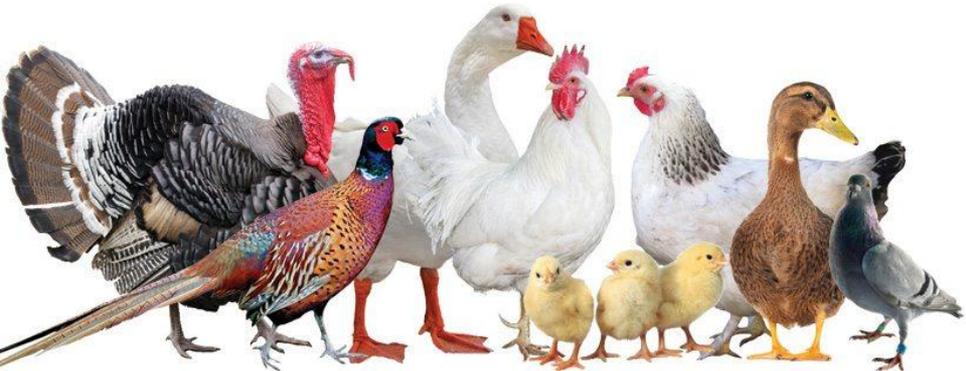
10%

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



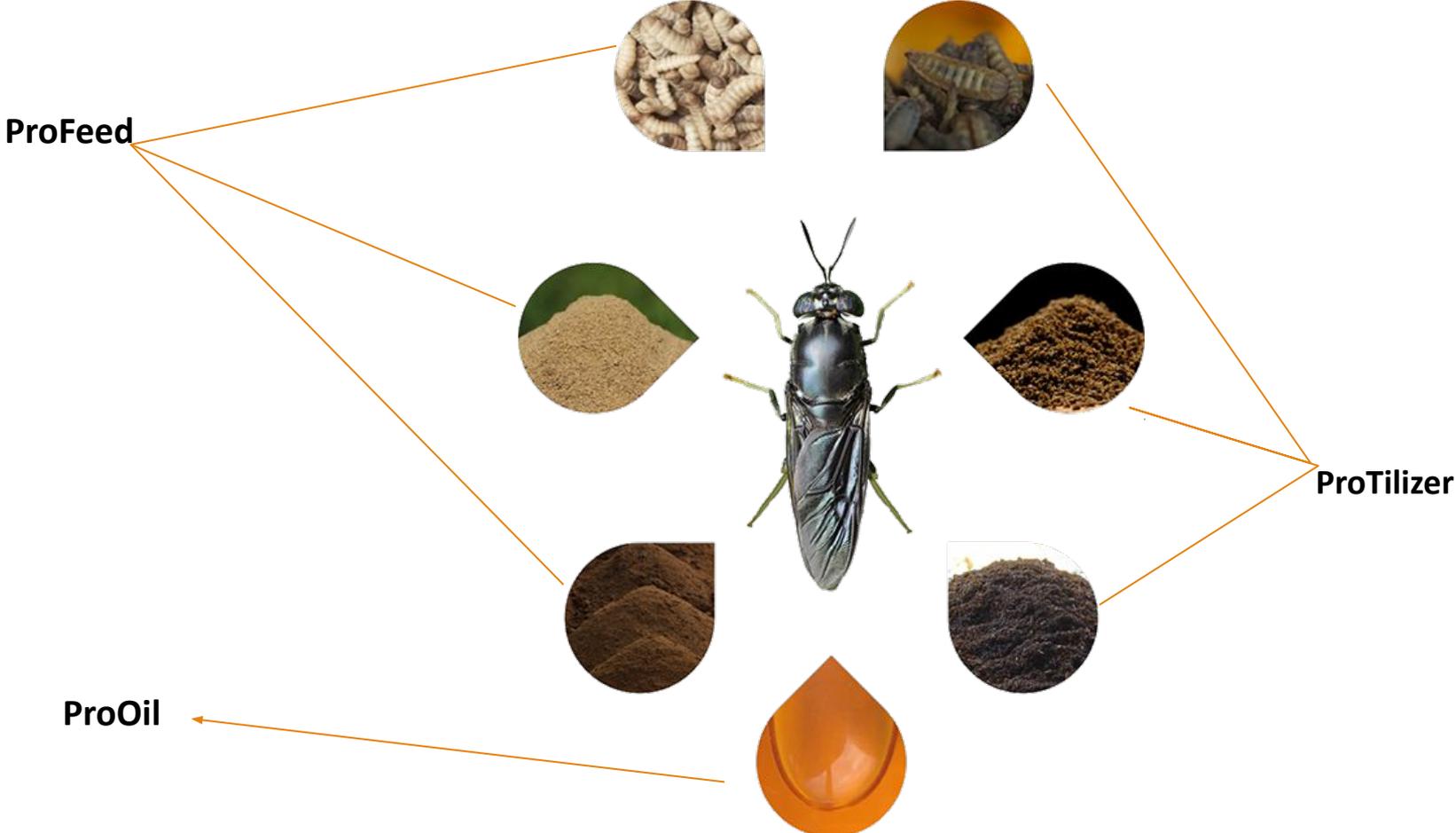
4. Harvesting after 8 days



BREEDING AT THE "LOVE HOTEL" (OBTAINING THE 5-DOL)



ZERO-WASTE PROCESS



VALUE PROPOSITION (2 YEARS)

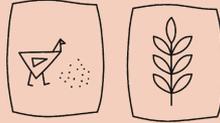


Citizens

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
- 500m² 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



CEO
Serial Entrepreneur
in Uganda

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

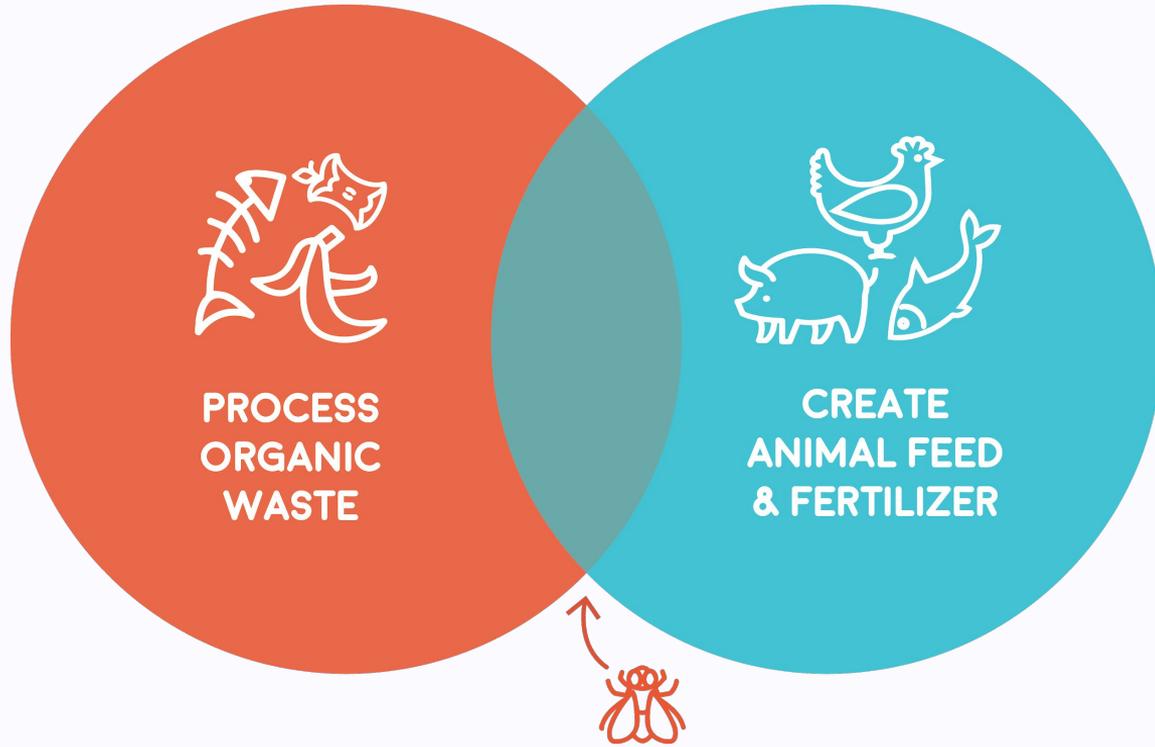
CPO
Local management
on the ground





**This business is
ready to fly!**

Thank you!



Impressions



Impressions



Find us: online

www.weareproteen.com

Visit: our documentary

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



PROTEEN

Cleaning Cities, Feeding Millions, Employing the Future.

