



TURNING WASTE INTO VALUE

PUPAL STAGE

Lifespan: 10 days to months



ADULT

Lifespan: 5 to 8 days

Introduction into the BSF-Pilot plant at Bunda College

PRE-ADULT STAGE
Lifespan: approx. 7 days

Hatch time: approx. 4 days

Life Cycle of
Hermetia illucens

5th instar

2nd instar

3rd instar

4th instar

LARVAL STAGE

Five instars

Lifespan: 13 to 18 days

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STEPS IN THE PRODUCTION



- ❖ Sourcing organic waste
 - ✓ Kumudzi lodge; kitchen waste
 - ✓ Campus markets; potato peels
 - ✓ Bunda & other farms; vegetables, fruits
- ❖ Setting traps
 - ✓ Substrate smelly enough; let it ferment
 - ✓ Wild eggs/ larvae
- ❖ Collecting eggs/ larvae
 - ✓ Checking and collecting eggs
 - ✓ Eggs placed directly onto of food
 - ✓ Larvae within 2 weeks

PUPAL STAGE

Lifespan: 10 days to months

Lifespan: 5 to 8 days

PREPUPAL STAGE

Lifespan: approx. 7 days

Number: 500 to 900
Hatch time: approx. 4 days

6th instar

5th instar

Life cycle of

4th instar

1st instar

2nd instar

3rd instar

LARVAL STAGE

Five instars
Lifespan: 13 to 18 days



STEPS IN THE PRODUCTION



- ❖ Rearing the larvae to pre-pupae stage in larvarium (3 weeks max.)
 - ✓ Addition of food
 - ✓ Daily observation on growth and performance
- ❖ Pre-pupae separation from the substrates
 - ✓ Use of sieves
 - ✓ Hand separation
- ❖ Transferring of pupae to insectarium

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Life cycle of
H. illucens

LARVAL STAGE
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6th instar

5th instar

4th instar

2nd instar

3rd instar

1st instar

THE INSECTARIUM



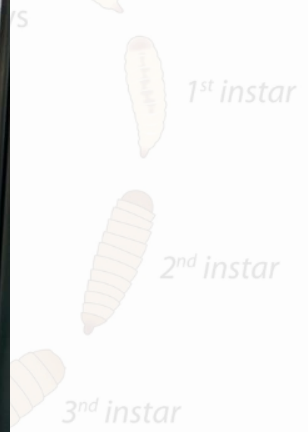
❖ Designed for BSF mating

- ✓ In cages
- ✓ Under sunlight & artificial light
- ✓ Good humidity

PUPAL STAGE
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ADULT
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EGGS



LARVAL STAGE
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Fig. 1. Inside the insectarium

THE LARVARIUM



- ❖ Designed for egg incubation, BSFL raising & Pre-pupae holding

Lifespan: 10 days to months



ADULT
to 8 days

1st instar

2nd instar

3rd instar
18 days

Fig. 2. Inside the larvarium



BIPOD TECHNOLOGY



Lifespan: 5 to 8 days

- ❖ A one stop center for small-scale production
 - ✓ Ease of rearing the larvae & cheap
 - ✓ Ease of collecting pre-pupae
 - ✓ Drains excess fluids from substrate
 - ✓ Design in the workshop is an example, can be upgraded



Fig. 3. The Biopod



Pupae Processing and Use



❖ Ways of using BSFL:

- Powder form
 - ✓ Drying; Sun & Chimney drying
 - ✓ Defattening to increase crude protein levels
 - ✓ Milled into powder form
- Dried larvae (fig.4.) and feeding directly
- Live BSFL feeding

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6th instar
Lifespan: approx. 7 days

1st instar

Life cycle of
H. illucens



Fig. 4. Dried pupae



Estimated production/Trial



❖ The larvarium can hold 45 containers

❖ The containers have a capacity of holding 5,000 larvae

❖ When the capacity of the pilot plant is fully used about 225, 000 larvae per trial can be produced in 2/3 weeks

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Life cycle of
Lucens