



Training Course on the Propagation of Black Soldier Fly (BSF)



**Turning Waste into Value:
Insect Proteins can replace Fish Meal
in Fish Feed**

Organized from the Project "Ich liebe Fisch"

When?
28. – 30.
April 2021

Where?
Bunda College,
Aquaculture and
Fisheries
Department
Farm, LUANAR

Organized from the
"Ich liebe Fisch" Project
www.fish-for-life.org



General Introduction

- **Professional fish feed production in Malawi is practically not existent.** Imported industrial feed (pellets) is not affordable for most rural aquaculture farmers in Malawi.
- **The production of larvae of the black soldier fly ("*Hermetia illucens*" BSF) to obtain insect proteins is a process that has already been established on a professional scale in many places.**
- **The BSF is probably the most widely used insect for the production of insect proteins.** The larvae are omnivorous, but can also feed exclusively on microbial or plant biomass. The flies and their larvae are robust and grow and reproduce well in typical tropical and subtropical temperatures. **Large parts of Malawi would therefore be an ideal location for larval production of the black soldier fly.**
- **Local production of BSF larvae with regionally and often freely available organic waste** (e.g. fruits no longer suitable for human consumption, such as mangoes, potato peels, rotten tomatoes, kitchen waste etc.) can be a sustainable, affordable and environmentally sound source of protein for the production of quality fish feed for the small rural aquaculture communities in Malawi.
- **In fish feed production in Malawi, insect proteins can be used to replace the costly fish meal** in order to achieve an affordable protein content of about 35% in fish feed. The fly pupae can also be fed directly to juvenile and adult fish.
- **The training course aims to communicate the basics on the propagation of the BSF, including the demonstration of the simple technologies required to grow BSF larvae.**



INVITATION

Training Course on the Propagation of Black Soldier Fly (BSF)

Course content

- Introductory presentations
- Guided tour to Bunda Campus aquaculture farm operation and BSF pilot plant
- Presentations about
 - Basics & biology of the BSF
 - Propagation technologies
 - Practical aspects in small-scale BSF production
 - Use of BSF in fish feed
- Hands-On Training on
 - Sourcing, rating and sorting out various substrates and substrate processing
 - Setting up traps to collect eggs of wild BSF
 - Grading larvae and pupae and demonstrating processing steps
 - Incubation of BSF larvae, construction of a BioPod

Who should attend

- Fish farmer who are interested to improve their fish feed quality significantly
- Instructors in aquaculture, Extension worker ("train the trainers")
- Advanced students in aquaculture

Details

- No course fee
- Max. 30 participants
- Accommodation and subsistence provided from the "Ich liebe Fisch" Project
- Free course material

How to register

- Registration opens now, please send an e-mail to Prof. Daud Kassam (dkassam@luanar.ac.mw), providing a short statement of your background and your motivation to participate and contact details. Deadline 20th of April, 2021

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"Flying into the Future"



Training Course on Black Soldier Fly Propagation



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"Ich liebe Fisch"-Project
28th – 30th of April 2021



Federal Ministry
of Food
and Agriculture



Gesellschaft
für Marine Aquakultur



Fraunhofer

EMB

DAY 1, 28.04.2021

07:00 – 08:00: Arrival of participants

OPENING PROGRAM- AQUACULTURE CONFERENCE ROOM

TIME	ACTIVITY	RESPONSIBLE PERSONS
08:00	Registration desk opens	Apatsa Chelewani, Hassib Sainan
09:00-09:10	Official Opening of the Training	Prof. Kassam/ HoD, AQF
09:15-09:25	Introduction into scope of the workshop, agenda, time frame, housekeeping issues etc.	Hassib, Apatsa, Esther
09:30-09:45	Introduction into the "Ich liebe Fisch Project", BSF-Extension, Scope and goals	Dr. Marina Gebert (pre-prepared ppt-presentations)
09:50-10:05	Introduction into BSF Propagation, general overview	Dr. Bernd Ueberschär (pre-prepared ppt-presentation)
10:10-10:20	GROUP PHOTO	
10:25-10:45	HEALTH BREAK, NETWORKING	
10:50-11:10	Professional scale production of BSF at Hermetia, a German company	Esther, Hassib, presentation
11:15-11:25	Guest-Presenter (from Crown-Project)	Mozes Mhindurwa, presentation
11:30-12:00	Q & A, related to the presentations in the morning.	All presenter locally, German Partner participating online
12:00- 13:00	LUNCH	
13:30-15:30	Guided Bunda college Aqua Farm Tour (Fish & BSF facilities), Overview	Mofolo Sifo and Apatsa, Esther
15:30–15:40	GROUP PHOTO ON FARM	
15:40-16:20	Q & A, related to the presentations in the morning	All presenter locally, German Partner participating online
END OF 1 ST DAY SESSION		

DAY 2, 29.04.2021

07:00 – 08:30: Arrival of participants

BUNDA FISH FARM

TIME	ACTIVITY		RESPONSIBLE PERSONS
09:00-9:10	Introduction into the programme of the day		Hassib & Esther
09:15-09:30	General aaspects of small-scale BSF propagation		Esther, Paul, Jasmin , presentation
09:30-9:45	Aspects of small-scale BSF propagation related to the scale of the pilot facility at Bunda farm		Esther , Paul, Jasmin, presentation
09:45-10:00	Solar Dryer: Principles, Technology and Construction of a simple device		Torsten Knörr (pre-prepard ppt-presentations)
10:05-10:25	HEALTH BREAK, NETWORKING		
10:30-11:30	<u>HANDS-ON SESSIONS</u>		Esther, Paul, start with the incubation in the morning, assumed there is a bright sunshine
	Practical-Solar dryer; test drying, some fruits, tomatoes etc. and maggots.		
11:30-12:00	General discussion, related to presentations in the morning (Q & A)		All presenter locally, German Partner participating online
12:00-13:00	LUNCH		
	<u>HANDS-ON SESSIONS</u>		
	<u>Group 1</u>	<u>Group 2</u>	
13:00-14:00	Setting up traps to collect eggs of wild BSF	Sourcing, rating and sorting out various substrates; Demonstration substrate processing	Esther, Hassib and Apatsa, Peace and Paul
14:00-14:30	HEALTH BREAK, NETWORKING		

	<u>Group 1</u>	<u>Group 2</u>	
14:30-15:30	Sourcing, rating and sorting out various substrates; Demonstration substrate processing	Setting up traps to collect eggs of wild BSF	Esther, Hassib and Apatsa, Peace and Paul
15:30-16:00	Review of the results solar dryer		Esther, Paul with all participants
END OF 2 nd DAY SESSION			

DAY 3, 30.04.2021**07:00 – 08:30: Arrival of participants****BUNDA FISH FARM**

TIME	ACTIVITY		RESPONSIBLE PERSONS
09:00–9:15	Practical-Construction of a Biopod		Presentation, Peace and Paul
	<u>HANDS-ON SESSIONS</u>		
	<u>Group 1</u>	<u>Group 2</u>	
09:15-10:15	Grading larvae and pupae and demonstrating processing steps; Incubation of BSF larvae	Construction of a Bio Pod	Esther, Hassib and Apatsa, Peace and Paul
10:15-10:30	HEALTH BREAK, NETWORKING		
	<u>Group 1</u>	<u>Group 2</u>	
10:30-11:30	Construction of a Bio Pod	Grading larvae and pupae and demonstrating processing steps; Incubation of BSF larvae	Esther, Hassib and Apatsa, Peace and Paul
11:30-12:00	Final discussion about BSF propagation		All presenter locally, German Partner participating online
12:00-13:00	LUNCH		
13:00-13:20	Each participant to complete a questionnaire about the workshop		All participants
13:20-14:00	Hand-over of certificates for participation in BSF-Workshop		All participants
14:00-14:10	Closing Remarks		Prof. Daud Kassam
14:10-15:00	HEALTH BREAK, NETWORKING, DEPARTURE		All participants
END OF TRAINING			