



Insect farming: invest
in the future food chain.







Big Dutchman

INNO⁺
AIR INSIDE



Climate for Growth

BETTER
INSECT
SOLUTIONS

We are the perfect partners for your investment in the future.

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Better Insect Solutions is the concept and solution hub of the Big Dutchman group, comprising the sister companies Big Dutchman, INNO+ and SKOV. For decades, these companies have provided cost-efficient and robust solutions for a **wide range of technologies applied in animal farming.**

Since 2020, BIS has been operating in the insect farming sector, bringing together the proven technology solutions that the sister companies use in pig and poultry production. Concurrently, a unique climate system and optimized feeding systems were developed to expand the range of services, **ensuring that BIS today**

has a complete solution for insect farming based on in-house products and systems.

Big Dutchman has been developing and realizing cost-efficient feeding systems and housing equipment for modern pig and poultry production since 1938 and is the recognized market leader of the animal farming industry. Across five continents and in more than 100 countries, **Big Dutchman stands for long-lasting quality, rapid service and unsurpassed know-how.**

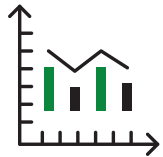
The mission of INNO+ is to **provide ideal climate conditions worldwide** in which animals perform

optimally all year round with innovative air cleaning and energy recovery solutions. With 20 years of experience in this field, it is the company's goal to support customers in the insect world by building sustainable farms that minimize production costs and the environmental impact.

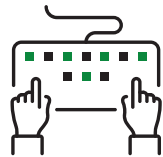
SKOV has gained a reputation of being at the forefront of climate and farm management systems for livestock production. The company started selling ventilation solutions for pig and poultry houses in 1966. Since then, new systems and products have been developed and **today, SKOV is a world leader in this field.**

Our comprehensive service range at a glance.

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ANALYSIS AND
CONSULTING



FARM ENGINEERING
AND PLANNING



PROJECT
SUPERVISION



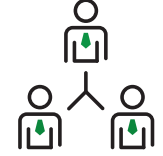
LOGISTICS



R&D AND
MANUFACTURING



INSTALLATION AND
COMMISSIONING



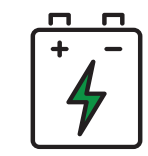
TRAINING



MAINTENANCE,
SERVICE HOTLINE
AND SPARE PARTS



TESTING
FACILITIES



ENERGY
MANAGEMENT

Insect farming could mend the world's broken food chain.

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Insects offer novel nutritional value and health benefits to humans and animals and are already used in different feed, pet food and food applications.

Over 2,000 insect species have a history of being used for feed and food. Still, only about a dozen different insect species are currently being produced on a large scale, because insects are just as hard to domesticate as other animals. One of the most promising insect species for extensive production is **the black soldier fly (*Hermetia illucens*)**, which is the species BIS focuses on.

International production volumes are still small compared to other production areas in the feed and food sector. However, according to various recent market analysis reports, the insect sector has an expected annual growth of 30 to 40 percent, estimated to reach a global production volume of **1,000,000 tons of protein and fat per year by 2030**.

As a by-product, a similar amount of insect frass (manure) can be expected – a product that has interesting properties for use as a fertilizer or in biogas plants.

Markets

Pet food, aquaculture, poultry, pigs, fertilizer industry

Products

Insect protein meal, fat, frass

Advantages

- Vertical animal farming that requires less land than soy
- 1 kg of eggs results in 5,000 kg of fully-grown larvae after 12 to 14 days
- Feed conversion ratio of growing larvae below 1.3

ESTIMATED ANNUAL GROWTH
OF THE INSECT SECTOR

+30–40%

BY 2030, ALMOST

9 billion

PEOPLE WILL NEED TO BE FED ALONG
WITH BILLIONS OF ANIMALS RAISED
EVERY YEAR FOR FOOD PRODUCTION,
RECREATION, OR AS PETS.

AFFIA
ASIAN FOOD AND FEED INSECT ASSOCIATION



International Platform of
Insects for Food and Feed

Better Insect Solutions supports the development of the
fast-emerging international insect sector as member of the
International Platform of Insects for Food and Feed (IPIFF)
and the Asian Food and Feed Insect Association (AFFIA)

Professional end-to-end solutions for your insect farm.

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Building design

BIS provides the conceptual building design and covers the interfaces between the different parts of insect production, e.g. logistics and processing.

Insect housing (cages and crates)

BIS offers specially designed insect production equipment for housing the flies and the larvae during all life stages. The patent-pending fly cages are a full breeding system. The crates are designed to accommodate the different requirements of the larvae in the nursery, grow-out and pupa sections.

Climate system

Large-scale insect production requires the correct climate conditions and a complete and controlled overview of all the necessary parameters. It places high demands on the ventilation system, which must ensure the right temperature, air quality and humidity regardless of the climate conditions outside.

Air cleaning and heat recovery

The emissions from insect production contain heat, moisture, greenhouse gases and odor. Our air-to-water air scrubbers can mitigate ammonia emissions and odor while also recovering heat. When combined with a heat pump system, the solution can deliver more heat than what is required for the farming operation.

Feeding system

Our feeding system for insect production is a flexible and modular system that provides the insects with liquid feed. Every system is matched to the feedstock used and the needed daily output.

Automation and logistics

The operational environment in insect production is particularly challenging, as live animals are transported in the crates. We combine critical knowledge and technical experience with internal transport and logistics processes.

Frass handling

The larvae produce a large amount of frass on all insect farms. We offer a complete system for handling this product, enabling insect producers to create added value with all their products.

Larvae processing

Whole larvae, protein meal, oil or other insect-derived products can be used in a range of products covering pharma, food, feed and technical applications. We make sure that key partners with insect experience from the processing industry are part of our team.

We are your one
point of contact.

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LARVAE
PROCESSING

BUILDING
DESIGN

INSECT HOUSING
(CAGES AND CRATES)

FRASS
HANDLING

CLIMATE
SYSTEM

AUTOMATION
AND LOGISTICS

AIR CLEANING AND
HEAT RECOVERY

FEEDING
SYSTEM



Next-generation insect production.



BUILDING DESIGN FOR
GREENFIELD OR
BROWNFIELD
PROJECTS



CLIMATE SYSTEM
AND CRATES



FEEDING SYSTEM



AUTOMATION
AND LOGISTICS

All photos from pilot scale facility at Enorm Biofactory.
BIS has supplied to this project: climate system,
feeding system, air cleaning and heat recovery.
www.enormbiofactory.com



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Our way of working.

This is how we approach our projects.

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Better Insect Solutions has a specific way of working on new insect farming projects. After a mutual agreement to work together, the process is divided into five steps, from the customer's business idea to the final stage of handing over a commercial operation.

1. Pre-feasibility covers setting the overall frame of the project such as defining location, technology needs and eventually support through a business case assessment. The objective is to analyze the basic feasibility of the project and to ensure that expectations align.

2. Feasibility is a stage that requires the involvement of a much larger project team, consisting of members from BIS and the customer. The customer should be able to decide whether the project should be executed or not after this step.

3. Execution covers the implementation of the project and is led by a dedicated BIS project manager. The site is developed and all systems are being installed by companies affiliated with BIS and key partners.

4. Technical commissioning is initiated at the end of the execution stage or when the installation of dedicated sections has been completed.

5. Biological commissioning covers the last stage of project commissioning. It is the final step of integration between our technology and the animals. The objective of this phase is to implement best practices in insect farming, thus ensuring that the new production site can start commercial operation.

Five project stages
for your success.

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BIOLOGICAL COMMISSIONING

TECHNICAL COMMISSIONING

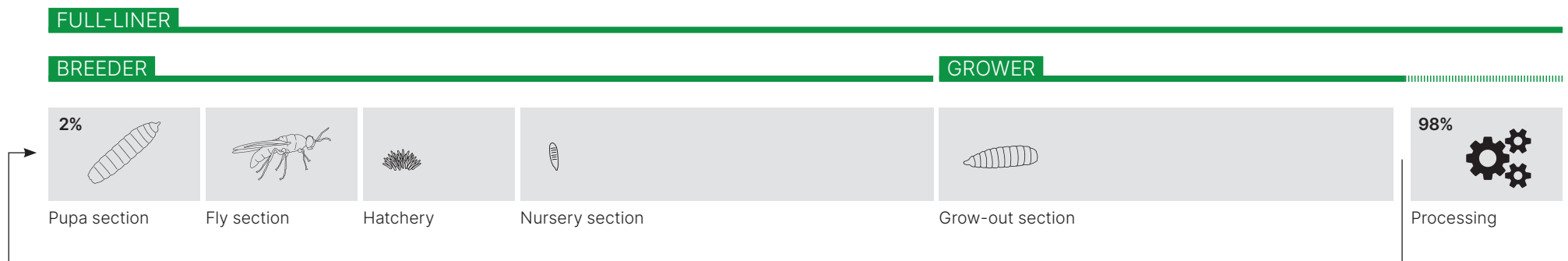
EXECUTION

FEASIBILITY

PRE-FEASIBILITY

Business models: the ideal option for everyone.

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Currently, a range of global business models exists, which all have at their core a similar approach based on the bioconversion of by-products. The feeding **sub-strate** can be purchased from one or several external suppliers. Other options are using the farm's residual biomass or other waste. Insect farms can be set up as a **full-line production site** or as a **rearing facility (grower)** supported by a **livestock supplier (breeder)**.

Full-liner

The business model of full-line producers includes all life stages of the black soldier fly. It normally requires a large operation and needs to secure large volumes of feeding substrate (more than 100,000 tons of liquid feed per year). The livestock is supplied through the on-farm production of eggs.

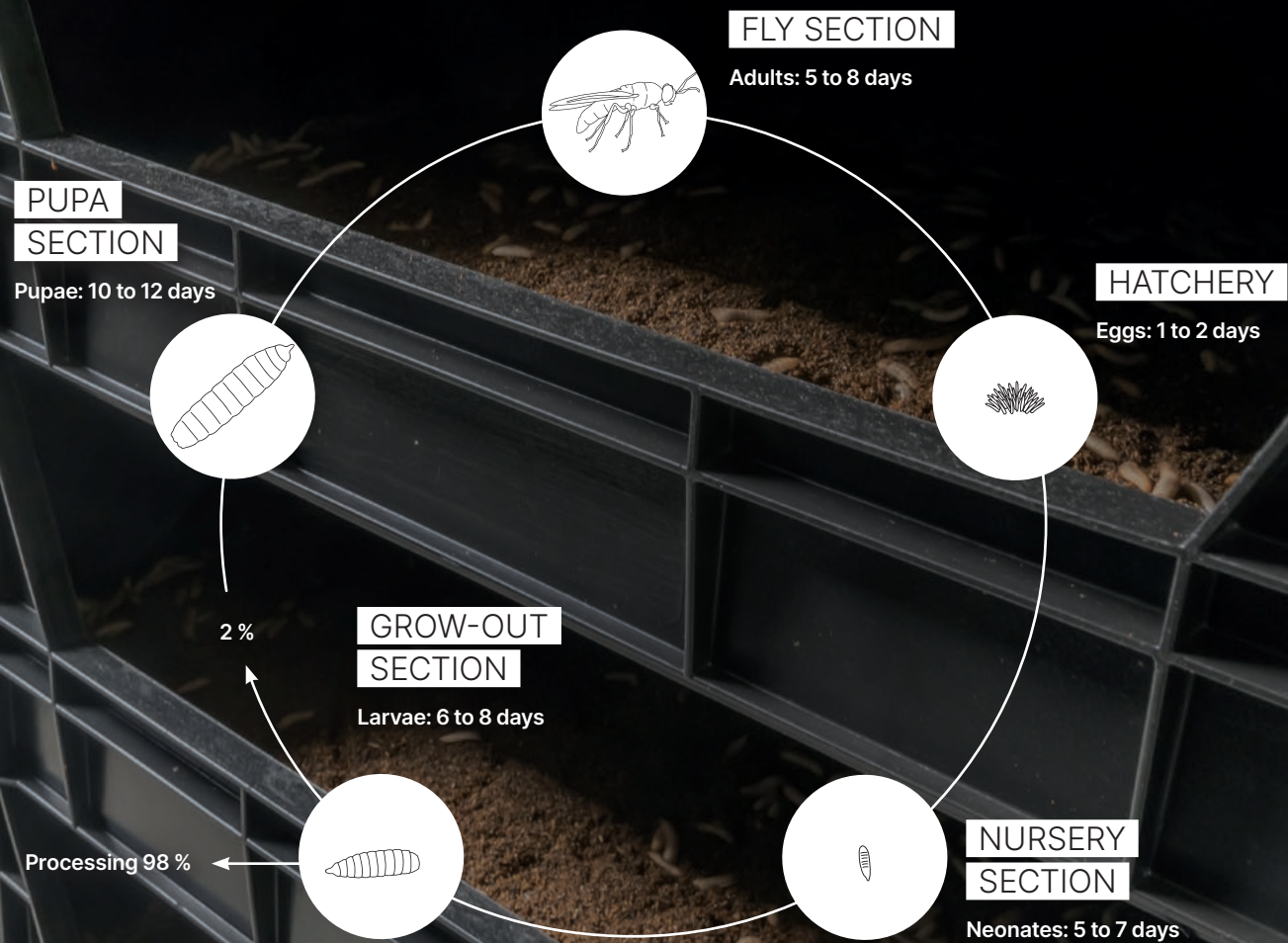
Breeder and grower

These models are a classic decentralization of the livestock supply chain known from other animal production business lines.

Breeders supply young insect larvae (known as neo-nates) to growers that rear the larvae to full size ready for further processing either on site or by a third party.

Growing fast: the life cycle of the black soldier fly.

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Why you should partner with Better Insect Solutions.

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- More than 80 years of experience in innovative equipment for animal production
- Customized solutions based on proven technology
- Internationally leading systems for insect production
- In-house know-how on insect farming
- Long-term trusted partner getting the job done



SUCCESSFUL COOPERATION:
FARMINSECT IN GERMANY
WWW.FARMINSECT.EU

