WORKING GROUPS

WG1
Population Structure, Inbreeding Management, and Genetic Diversity
Led by Christoph Sandrock (CH)

WG2
Mating Control
Led by Olga Ameixa (PT)

WG3
Interactions between Genetics, Environment and Community (GxExC)
Led by Gertje Petersen (DE)

WG4
Breeding Objectives
Led by David Deruytter (BE)

WG5
Phenotyping Systems
Led by Esther Ellen (NL)

WG6
Estimation of Breeding Values
Led by Sreten Andonov (MK)

WG7
Dissemination and Communication
Led by Jana Obšteter (SI)

WG8
Inclusion and Representation
Led by Mert Kükrer (TR)

Science Communication Officer
Georgia Baliota (GR)

Grand Awarding Officer
Alexandre Trindade (PT)

JOIN THE INSECT-IMP PROJECT!

Together, we will drive innovation and sustainability in the insect breeding and farming sector.

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COST Insect-IMP WG7

INSECT-IMP

INSECT BREEDING: IDENTIFYING AND OVERCOMING CHALLENGES

cost
EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY

Funded by the European Union

WHICH INSECTS ARE COMMONLY BRED?

Systematic insect breeding programmes are scarce and there is a need to develop **standardised** but **adaptable methodologies**.

By 2030, the edible insect market is expected to reach $9.60 billion

CHALLENGES

Genetic resources and diversity

- Limited understanding of domestication effects
- Establishing links between farmed insects and conservation of local species
- Developing methods to effectively monitor genetic diversity and population structure
- Identifying cost-effective methods for genotyping

Reproduction

- Issues with mating control due to multiple mating, polyandry, and mating in the air
- Difficulties in tracking and recording the pedigree
- Potentially low transferability of methods between species

Interactions

- Honeybees completely depend on their environment, while insects for food and feed are bred in controlled conditions - need to evaluate and control for GxE
- Insects live in tight groups or colonies – need to evaluate the effect of community and social interaction effect on breeding outcomes

Phenotyping

- Individuals are small – non-invasive methods are needed for tracking and measuring individuals
- Individuals are short-lived – genotyping and evaluation during their life span is difficult
- Metamorphic life cycle
- Life cycle specifics raise the question of individual vs. batch phenotyping
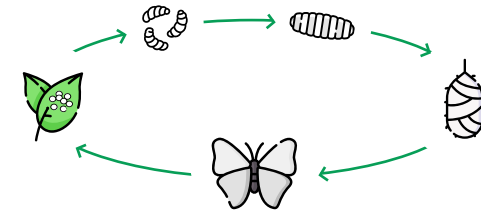
Breeding goals

- Poor understanding of market needs and preferences
- Little knowledge of economically important traits and their economic value
- Lack of communication between private and public breeding sector and research

Weight   Yield   Time   Health

Selection scheme

- Finding best selection scheme and a balanced selection of traits is challenging and depends on societal, economic, political, and environmental factors, which vary from region to region.