INSECT-IMP

cost
EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY

WG-7 Dissemination (and communication)

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Year 1 activities

- 4 (5) online meetings
- PRs in 15 different languages
- Social media: LinkedIn, X, Instagram, YT
- Website: cost-insectimp.eu (creation + updates)
- Visual identity + communication kit
- Science communication plan

Power point Presentations

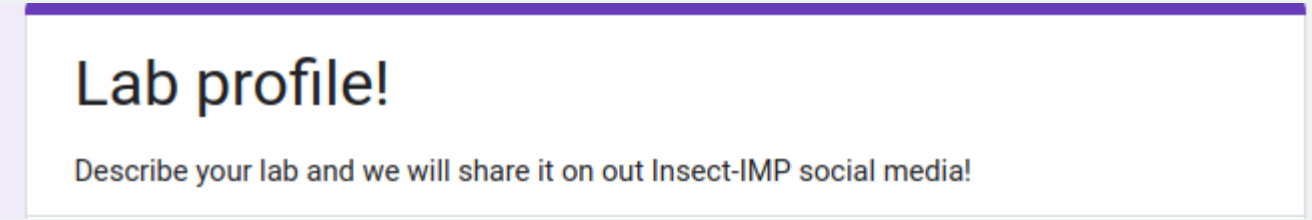
- Action description slides
- Presentation slides

Communication kit

- Word_COST Insect-IMP
- PPT_COST-insect-IMP
- Poster-template_COST-insect-IMP

Lab profile!

- Google forms



Your name

8 odgovorov

David Fisher

Eliaou SELLEM

Saša Krstović

Jonas Claeys

Ksenija

Joanna Zeyland

Leo Beukeboom

BALIOTA GEORGIA

Infographics!

- Infographic on basic breeding for insect producers
- Infographic on issues of insect breeding for breeders and quantitative geneticists
- Infographic on the importance of insects

- Drafts send to a designer (also a promo flyer and a roll-up)
- PDFs on the website, email …

BREEDING MADE EASY: AN EASY APPROACH INSECT BREEDING

Why would you breed insects?
Using the experience and knowledge gained from breeding programs for more traditional livestock, insect breeders can significantly enhance their production capacity compared to random parent selection. Maintaining and improving genetic quality in mass-reared insects is crucial for commercial production in food and feed.

Phenotype- the visible traits of organisms, including morphology, behavior, and physiological products.

REARING vs BREEDING vs FARMING

Farming
The production aimed to provide one or more useful insect-derived products to humans and animals.

Rearing
The process of keeping, feeding and providing care for targeted insects. The rearing aims to provide one or more useful insect-derived products to humans and animals.

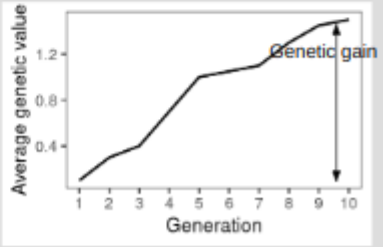
Breeding
Involves selecting individuals with desired traits to serve as parents, who are then crossed to produce offspring with those desired traits. The selection of parents is commonly done on breeding values.

What is needed for succefful breeding?

- **Identtification of individuals**
- **Accurate measurement**
- **Pedigree keeping**
- **Estimation of genetic potential**
- **Parent selection**
- **Controlled mating**

Definition of genetic gain

Genetic gain is the improvement in average of the population. We can increase **breeding or genetic value*** the genetic gain by increasing the accuracy or intensity of selection, and by decreasing the generation interval. Genetic gain also decreases by decreasing the genetic variability in the population, hence managing inbreeding is important.



***Breeding value** is the value of animal's genes for their progeny. It tell us how much better their offspring will be from the average of the whole offspring's generation.

INSECT BREEDING: IDENTIFYING AND OVERCOMING CHALLENGES

Which insects do we breed?

- Pollination
- Food and feed
- Commodities
- Waste management
- natural pest control

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

CHALLENGES

Genetic resources and diversity
- Lack of knowledge of domestication
- Need to find links between insects, conservation and local species
- Need to develop methods to effective monitor genetic diversity
- Need to find effective methods for genotyping

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

Reproduction
- Multiple mating, polyandry and mating in the air
- Problem with mating control
- Problem with tracking the pedigree
- Is there any transferability of methods between species?

Phenotyping
- Individuals are small – problem with non-invasive methods and how to track and measure individuals
- Individuals are short-lived – problem with genotyping and evaluation during their life span
- Metamorphic life cycle
- Question of individual/batch phenotyping

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 community/social interaction effect

Breeding goals
- Lack of understanding of market needs and wishes
- Need to identify all economically important traits and determine economic value
- Lack of communication between industry and research

Body weight | Yield | Developmental time | Health

Selection scheme
- Need to evaluate best selection scheme for different systems

Bugs With Benefits

Insects are Essential for a Healthy Environment

- Insects are the most abundant group of animals
- They provide several essential Ecosystem Services in all major categories (Provisioning, Regulation & Maintenance and Cultural)
- 1.5 million known insect species in the world over 97% are beneficial or harmless

Economic Sustainability

Environmental Sustainability

Next

- Prepare newsletter on the year 1 activities
- Lab profile!
- Distribution of material
- Communication/dissemination at conferences
- Regional communication / dissemination

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Thank you!

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