ZwarteBij.org

Conservation, distribution and research

Jurgen Boterberg

SICAMM

Our association

- Founded in 2015
- Over 180 members across Belgium, the Netherlands, Luxembourg, Germany and France
- Main goal is to preserve our native Dark bee
- Focusses on
  - Breeding & Conservation
  - Research
  - Education
  - Representation

Conservation

- We established a new A.m.m. population in Flanders – Belgium (2022) ★
- Based on source material from Chimay (BE) and some from Texel (NL)
- Start genetics were screened for (lack-off) hybridisation via snp analyses
- Population is treatment free, black-box but with selection on hybridisation and 4th quarter behaviour selection
- Natural mating within population to include drone vitality influence
- Collaboration with nature conservationists and State Agency for Nature & Forestry Management

Aim = robust treatment free A.m.m. population of approx. 100 colonies
Broad genetic background with minimal (human) selection criteria

Traditional Breeding

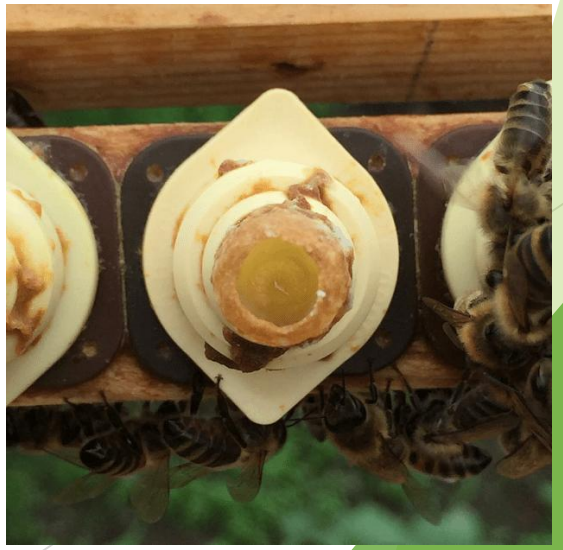
- Most beekeepers will only replace their non-native stock by Dark bees if they perform equally well or even better than the non-natives
  - Breeding is a necessary tool

- Performance testing based on BeeBreed criteria
  - Productivity
  - Suppressed Mite Reproduction
  - Gentleness, Calmness
  - etc.

Spreading the native genes

- Grafting network
  - Places across the Low Lands where members can collect free larvae from our best performing Dark bee colonies

- Members can raise their own Dark bee queens

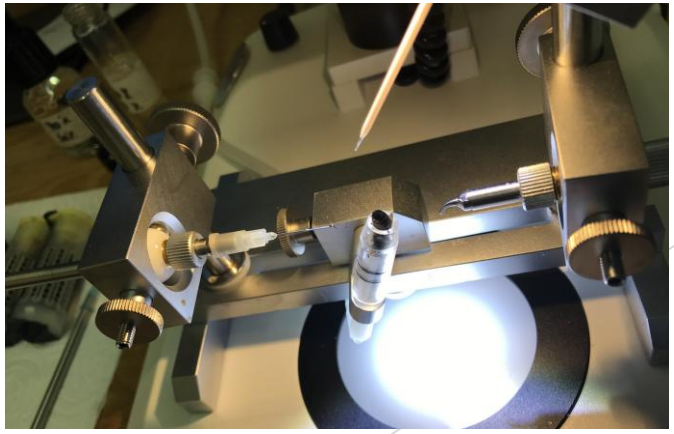


Mating control

- Land mating station in National Park Bosland (Belgium) since 2016
  - race mating station with colony-free radius of 2.5 km, surrounded by Carnica beekeepers
  - Fully subsidised by State Agency for Agriculture
  - Drone colonies are genotyped using SNP technology
  - 2024: 67% of resulting worker bees turned out to be *A. m. mellifera* using 30 drone colonies; permission to increase to 80 drone colonies

- Additional mating location under assessment in Belgium and the Netherlands

- Application of instrumental insemination



Education

- Monthly online lectures about Dark bees and beekeeping
- Educational gatherings about queen rearing and breeding
- Courses on sustainable beekeeping and queen rearing
- Open days
  - Especially important for beekeepers who don’t have Dark bees (yet)

Research

- Projects with regional universities
  - Ghent University (BE): evaluating marker-assisted selection on SMR and virus resistance
  - University of Leuven (BE): identifying genetic background of early brood stop in Dark bees
  - Wageningen University (NL): geno- and phenotyping of the Terschelling Dark bee (project proposal submitted)

GHENT UNIVERSITY

KU LEUVEN

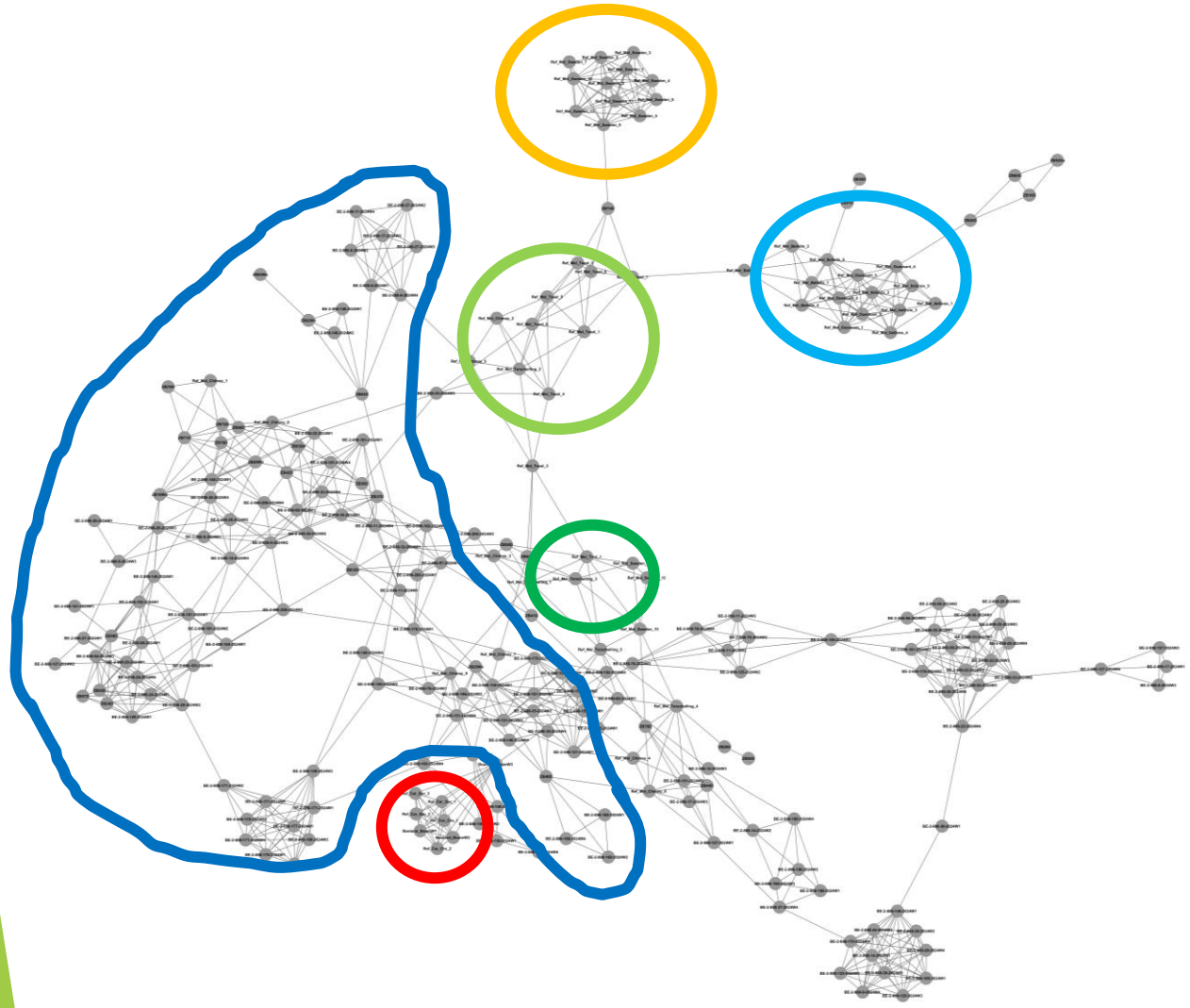
WAGENINGEN UNIVERSITY & RESEARCH

- Horizon Europe project BeeGuards
  - Evaluating innovative versus conventional treatment methods against Varroa, exploring holobiome of honeybee subspecies etc.
  - Only consortiumpartner with Dark bees

BeeGuards

- Own projects

Investigating introgression and relatedness between subspecies and different AMM populations



- *A. m. m.* Belgium
  (Chimay, Bosland)
- *A. m. m.* Netherlands (Texel)
- *A. m. m.* Netherlands (Terschelling)
- *A. m. m.* France
  (Groix, Ouessant, Belle-Ile)
- *A. m. m.* Sweden
- *A. m. carnica*

Application of Illumina Honeybee_2021 SNP chip

By Dylan Elen (ZwarteBij.org) & Markus Neuditschko (Agroscope)

Interested in joining with your population?
Contact: dylan.elen@zwartebij.org

Representation

- Representing our part of the beekeeping sector in official committees of the Flemish and Belgian government related to education, bee health, Asian hornet etc.

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Questions?