Department of Agriculture Sabah

GOOD AGRICULTURE PRACTICES FOR PRODUCTIVE STINGLESS BEE REARING

2nd International Stingless Bee Conference & Workshop 2019
July 31st, 2019 – August 2nd, 2019
TH Hotel, Kota Kinabalu

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myGAP MALAYSIA

Introduction

- Bee honey in Malaysia categorized as a supplement – not certified for export.
- Malaysian Good Agriculture Practices (Apini and Meliponini) was started on January 2019 – myGAP.AM
- To meet the Codex Standard of honey (world wide standard for honey).

Objective:

For sustainable farming, safe, environmentally friendly and providing authentic and quality by-products.

Elements of Good Agriculture Practices for Stingless Bee Rearing in Malaysia

1. Traceability
2. Record keeping and auditing
3. Site selection
4. Management of Meliponary
   i. Presence of hive/log
   ii. Colony selection
   iii. colony transfer
   iv. Colony multiplication
   v. Bee welfare
   vi. Pest management
   vii. Location and transportation of products
   viii. Waste management
5. Harvesting
6. Post-harvest
7. Processing
8. Packaging
9. Storage
10. Analysis
11. Workers welfare
12. Environmental management and biodiversity
13. Reversal procedure

1. Traceability

- The yield can be traced from where(farm) it was released/produced.

Action plan – register with Department of Agriculture Malaysia as a myGAP.AM participant.

Evidence

I. Document - No. of certificate on the packaging/bottle/boxes/plastic.
II. Field – packaging material and place of yield storage.

2. Record keeping and auditing

- Provides a records of all beekeeping activities, accessible and audited.
- Update a record of at least 6 months before the date of audit.
- Keep a record for at least 2 years or as required by the law after certification.
- Auditing will be conducted by the Department of Agriculture.

3. Site selection

- Evidence for stingless bee farming.
- Stingless bee farming is not carried out in locations that have potential of pollution and safety risk to bees, yield, the public and the environment.
- To comply with environment laws – cleanliness of air, water, soil, biodiversity, etc.
- Site selection to suit its species and habitat.

i. Have food sources such as nectar, pollen and water.;
ii. Has a sources of nest building materials such as resin;
iii. No pests.
iv. No toxic plants such as Ericacaeae plants: eg. Rhododendron sp.; and
v. Have enough shade and sunlight.

Potential of pollution (example)

Paddy field with insecticide application

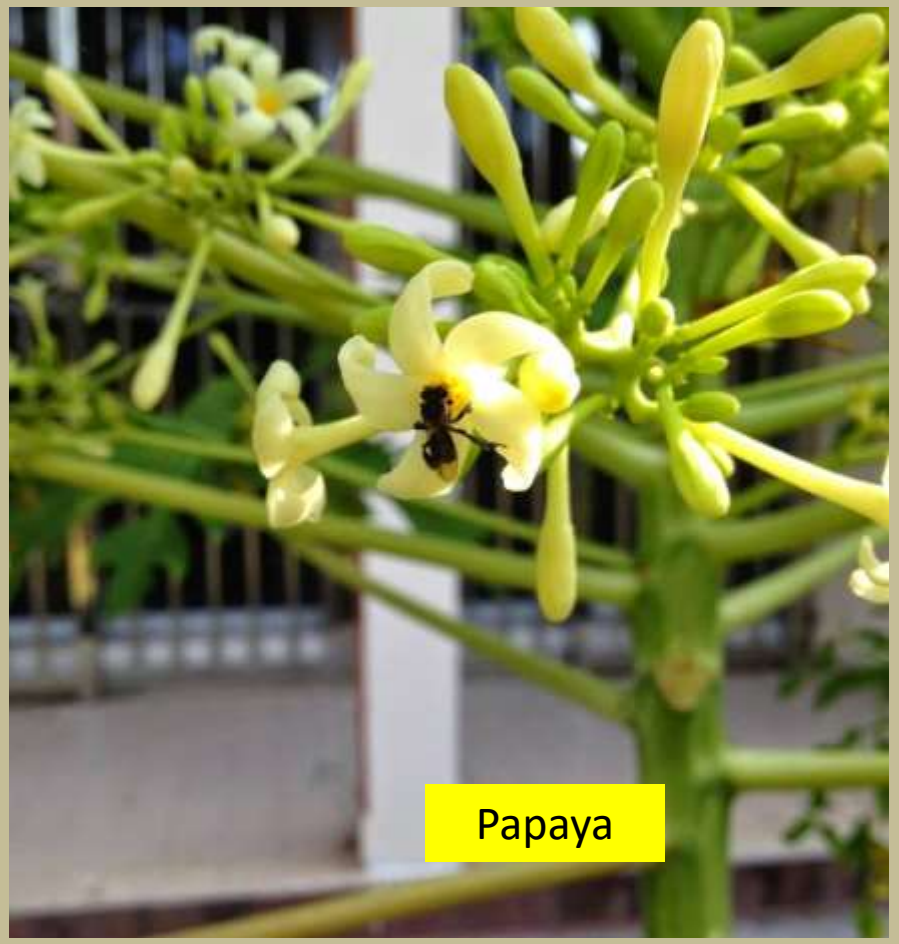
Site selection – have sources of resin

Resin from pine tree

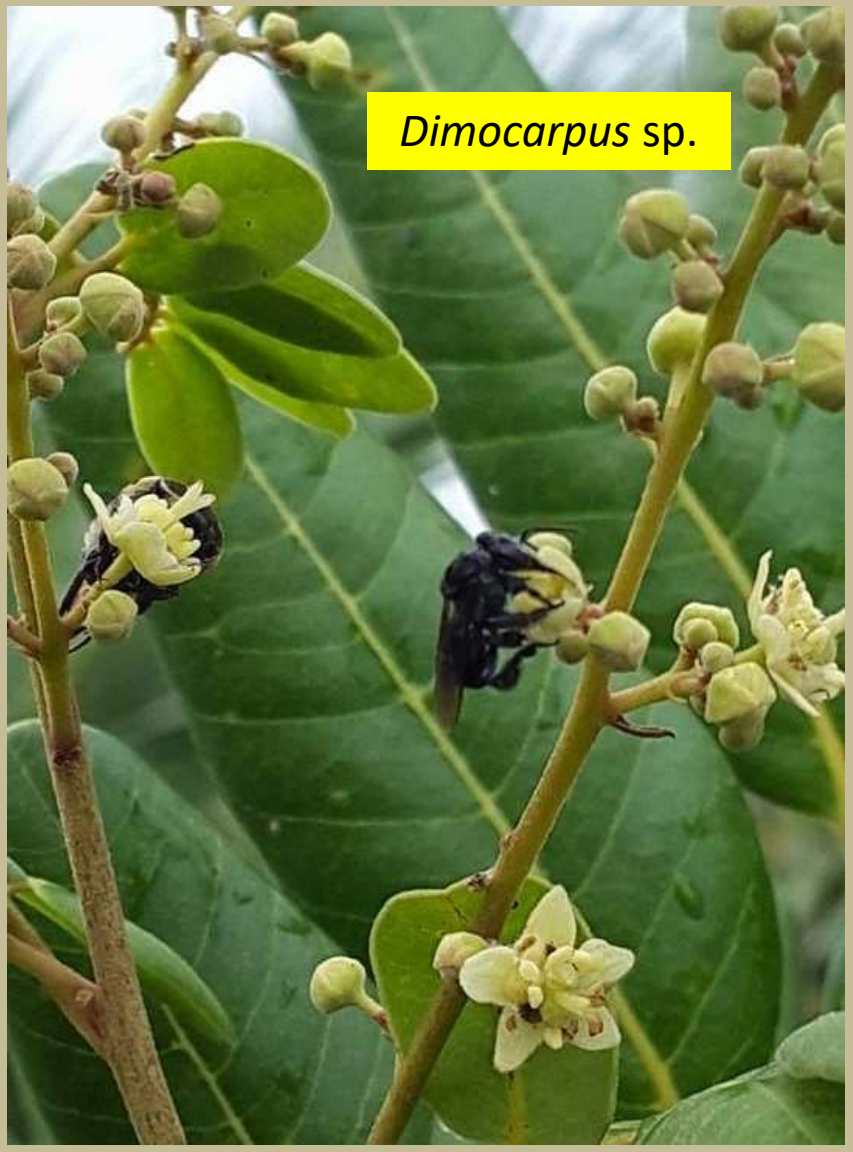
Resin from rubber tree

Site selection – have food sources

Site selection – have food sources



Site selection – have food sources



Site selection – have enough shade

4. Management of Meliponary

4.1 Presence of hive/log

4.2 Colony selection

4.3 Colony transfer

4.4 Colony multiplication

4.5 Bee welfare

4.6 Pest management

4.7 Location and transportation of products

4.8 Waste management

4. Management of Meliponary

4.1 Presence of hive/log

- made from materials that do not pose a risk of pollution to bees, yield and the environment.

- Hive is not placed directly on the ground.

4. Management of Meliponary

4.2 Colony selection

- Enough food
- Suit to their habitat
- Strong
- Stable
- Active
- Free from pests

The procurement of the colony's resources must comply with the current state or country laws.

Active colony (FIFO)
70 stingless bee/minute

4. Management of Meliponary

4.3 Colony transfer

- Ensure queens, workers bee, and broods are moved together into hive with taking care of the colony welfare such as ambient temperature and adequate food supply.
- Transfer from original position (wild colony, wooden logs, nests in the ground, decayed logs).

4. Management of Meliponary

4.4 Colony multiplication

- Duplication should be performed on colonies containing at least 10 layers of cavity cells.
- A colony that has enough food, suitable for its habitat, strong, active and should be pest free.

The procurement of the colony’s resources must comply with the current state or country laws.

4. Management of Meliponary

4.5 Bee welfare

- Nest entrance must be closed during poisonous spraying is carried out to prevent the destruction of the colony.
- Water supply should be replaced at least 3 days to prevent the propagation of the larvae and provide a clean water source.
- Water sources should be provided for bees especially during drought season.

4. Management of Meliponary

4.5 Bee welfare

- Additional food should be provided in critical seasons such as rainy or hot seasons to ensure the survival of the colony.

4. Management of Meliponary

4.5 Bee welfare

- Honey and bee bread should be left at least 30% during harvest to ensure the survival of the colony.

4. Management of Meliponary

4.5 Bee welfare

- The queen bee should not be touched or harmed. Insemination of bees is allowed.
- The queen bee should not be touched because:

i. Feared that the odor of the phylum on the queen's body would be disturbed and would be killed by the colony.

ii. Preventing the queen injured and causing stress that effect on producing eggs.

4. Management of Meliponary

4.5 Bee welfare

- Periodic inspection should be carried out at every hive, to ensure there are no pests and the colony has sufficient food.

4. Management of Meliponary

4.6 Pest management

- Pest supervision should be periodically monitored and recorded. Seek the advice of a competent party if preventive measures fail.
- Mechanical and biological control.

4. Management of Meliponary

Pest:
Haptoncus luteolus
(pollen beetles)

4. Management of Meliponary

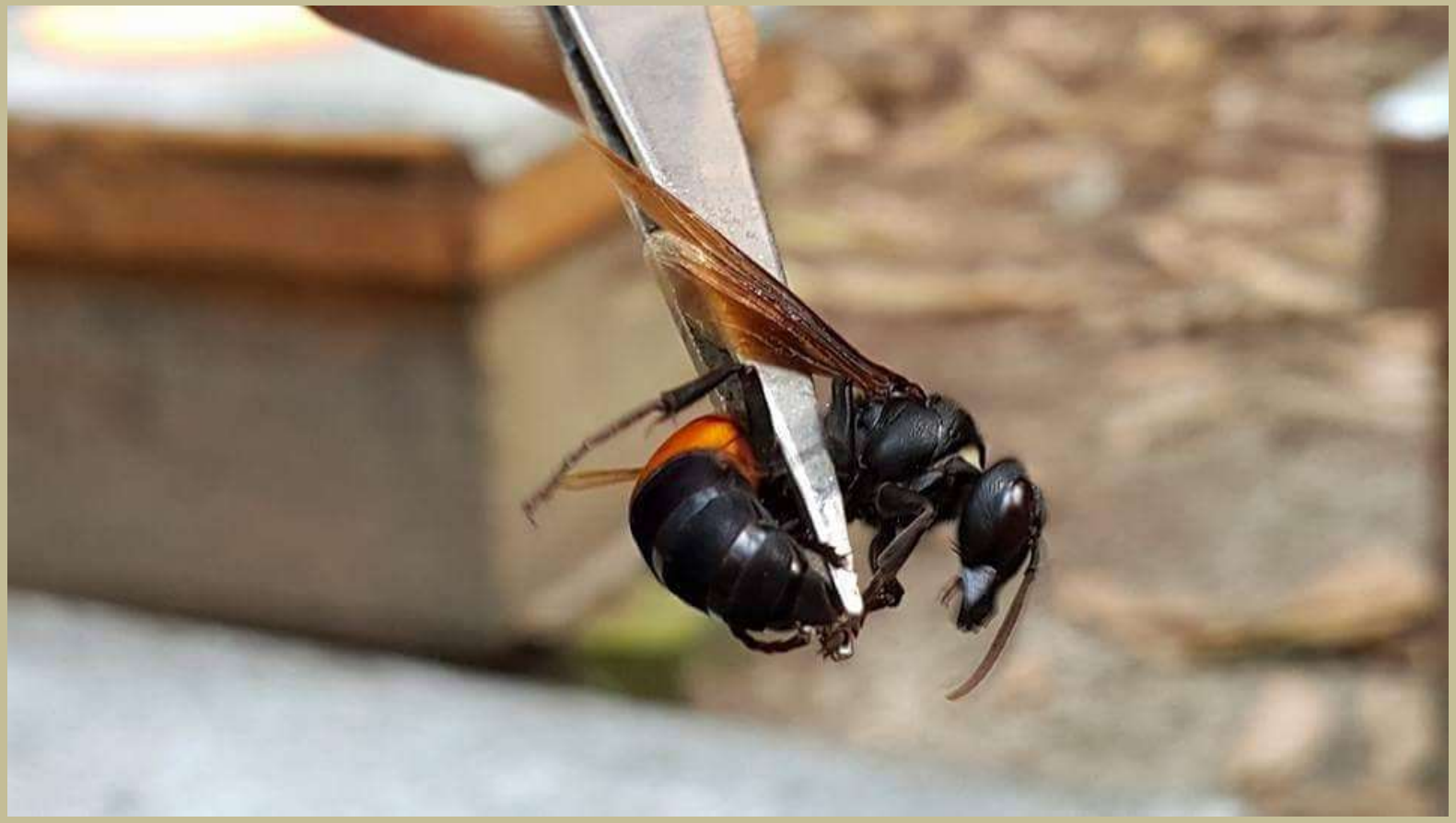
4. Management of Meliponary

Tapir bees stole propolis and caused disruption to the stingless bee.

4. Management of Meliponary

Assasin bug waiting and sucking the fluid from the victim’s body.

4. Management of Meliponary



4. Management of Meliponary

4. Management of Meliponary

4.7 Location and transportation of transferring colony and products.

- Transferring of colony locations should take into account the welfare of the colony such as ventilation, temperature and travel duration.
- Honey transport must have a temperature control system to guarantee the quality of honey.

4. Management of Meliponary

4.8 Waste management

- The farm should be clean of all types of waste to prevent it from becoming a breeding ground for pests.

H. Itama **workers are taking sweets from mangoes that may have been contaminated with pests' egg due to poorly managed farm waste.**

5. Harvesting

- Performed in the known seasons and not during the prolonged rainy and hot seasons.
- Location and environment are clean.
- The harvesting of honey and bee bread should come from closed cups only.
- All equipment's and container should be clean, acid resistant and well-maintained.
- Harvesting activity should be recorded.

6. Post Harvest

- Harvesting temperature and environment does not exceed 40˚C.
- Honey should be refined before being put in a clean bottle, acid resistant and meeting food storage standards.
- Bread cup and bee bread were cut and separated from the nest during harvest and stored in the freezer at 0˚C - 4˚C until processed.
- Stored honey should be dehydrated to ensure quality.
- Propolis is cleaned from bee bread and stored in the refrigerator at 0˚C - 4˚C before processing.

Harvester equipment and storage containers cleaned

7. Processing

- Carried out in a clean environment to prevent contamination of the yield.
- Processing premises must comply with the guidelines set by the competent authority.
- Honey and bee bread should be dehydrated at a temperature not exceeding 40˚C. Water content should not exceed 22%.

8. Packaging

9. Storage

- Products must be kept in a clean, acid resistant container and complies with food storage standards.
- Containers should not be placed directly on the ground/floor to ensure cleanliness.
- Adequate and appropriate pest control should be implemented in the handling and storage of packaging materials.

10. Analysis

- Analysis:

i. Heavy metal content,

ii. Insecticide/weedicide residual, and

iii. Veterinary medicine on the products (if any).

- Complies with the provision of the *Food Act 1983 (Act 281)* and *Food Regulations 1985*.

11. Worker welfare

- The appointment of workers in compliance with the law.
- Workers:

i. Trained and recorded.

ii. Healthy and clean.

iii. Wear appropriate protective clothing, clean and safe when doing harvesting.

- First Aid Kit provided in the farm.
- Warning signs in areas identified as dangerous.
- Accident and emergency response procedures are provided.
- If home is provided in the farm should be comfortable, safe and have basic amenities and needs.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PROGRAM AMALAN PERTANIAN BAIK
JABATAN PERTANIAN NEGERI


PETI PERTOLONGAN CEMAS
first aid kit

12. Environmental management and biodiversity

- The opening and invasion of permanent forests or cultural heritage areas for the preservation and breeding of stingless bees is prohibited.

13. Reversal procedure

- If the products is identified to be contaminated:

i. Need to separate and stop selling.

ii. Should notify the buyer or seller if the product has been sold.

- Investigate any source of contamination, take corrective action and record.


BEE BREEDING YARD


TAMAN PERTANIAN SABAH
PESTA BUNGA

THANK YOU!