Stingless Bees

“BREEDING & REARING for sustaining benefits”

BEES

Honey Bee
(Apis)

Sting

(Apiculture)

Trigona Bee
(Kelulut)

Stingless

(Meliponiculture)

Products of beekeeping

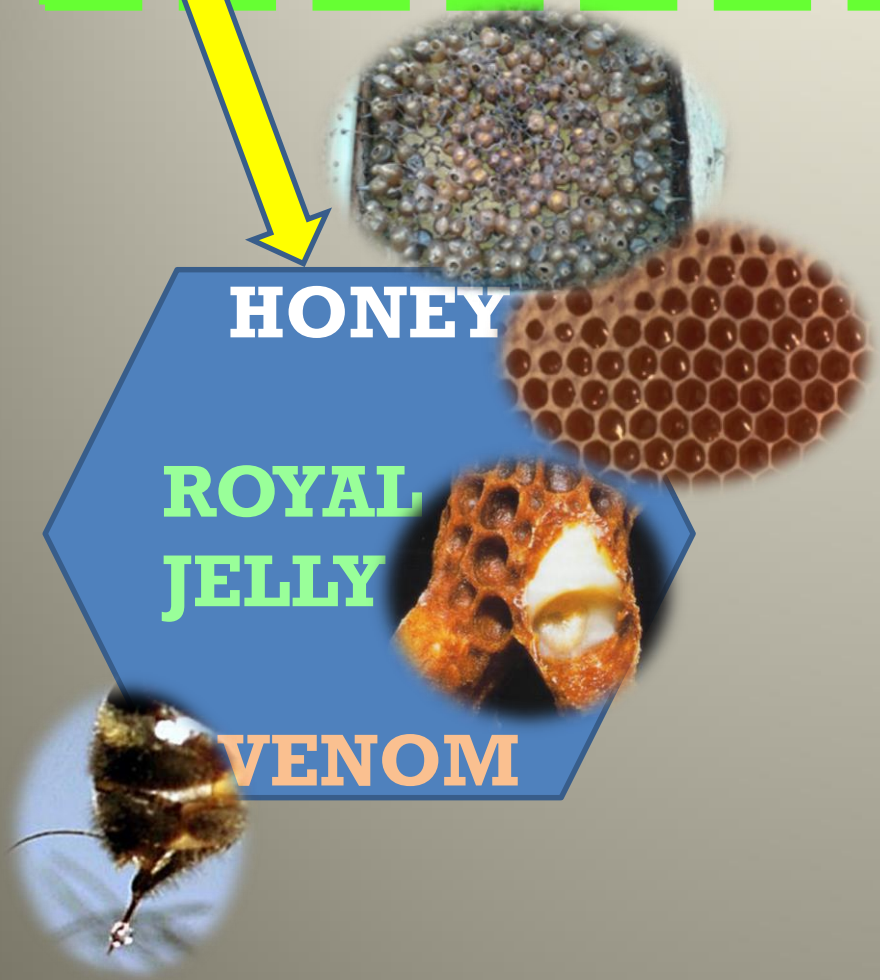
Products	Honey Bee	Stingless Bee
Honey	*Yes*	*Yes*
Propolis	*Yes*	*Yes*
Pollen / Bee bread	*Yes*	*Yes*
Wax	*Yes*	*No*
Royal Jelly	*Yes*	*No*
Venom	*Yes*	*No*
Colony	*Yes*	*Yes*
Pollination	*Yes*	*Yes*

Surah 16 (An-Nahl / Bees):

68. And your Lord inspired the bee, saying: "Take you habitations in the mountains and in the trees and in what they erect.

69. "Then, eat of all fruits, and follow the ways of your Lord made easy (for you)." *There comes forth from their bellies, a drink of varying colour wherein is healing for men.* Verily, in this is indeed a sign for people who think.

"There comes forth from their bellies, a drink of varying colour wherein is healing for men."




Why ME ?

5 reasons:

- Income (RM / € / £ / ¥ / $)
- Product ~ pure & health
- Pollination ~ increase crop yield
- No sting
- Hobby ~ landscape / beescape

How to start the Stingless bee project

patan Pertanian ba
ternakan lebah kelulut

» Kenal pasti 17 pengusaha dengan salurkan bantuan eralatan ilai RM10,000

Factors to consider :

1. Farm location

2. Type & Acquisition of stingless bee colony

3. Farm Management system

4. Marketing strategies

1. Farm location

Characteristics:

- Bee plants – supply ample food sources (nectar, pollen) & resin ~ from wild plants (forest) or planted plants/crops.
- Zero disturbance – No pests, animals or human .
- Shade – trees/plants , black netting
- Access road.
- Water sources.

Nectar

Blossom

Pollen

Trunk/bark

Resin

Nectar

Carbohydrate source

HONEY

Pollen

Protein source

'BEE BREAD'

Resin

To build nest

PROPOLIS

Extra floral nectar

Collecting of resin

Nest constraction from resin

2. Types & Acquisition of colony

Recommended

Type of Stingless bees

- *Geniotrigona thoracica*
- *Heterotrigona itama*
- *Lepidotrigona terminata*
- *Tetragonula laeviceps*

Taxonomic hierarchy:

Kingdom : Animal
Phylum : Arthropoda
Class : Insecta
Order : Hymenoptera
Family : Apidae
Subfamily : Apinae
Tribe : Meliponini
Genus : Trigona
Subgenus : Heterotrigona
Species : itama

= Apis

eg. Trigona (Heterotrigona) itama

Caste

Honey bee

Kelulut

Worker

Drone

Queen

Honey bee

Kelulut

Nest structure

Wax produced by wax gland

Propolis/resin collected from trees

Methods of Rearing

1. Log with Topping (honey cassette) -LWT

2. Brood chamber hive with topping (honey cassette)-BCWT

3. Single Brood Chamber Hive (SBCH)

Method 1 : Log with Topping (honey cassette) -LWT

- Preferred (90%)
- Easy
- Cheap

Topping (honey cassette)

- Multiple size
- Made of wood

Log

- Fresh log obtained from forest
- Fresh log from sawmill

Method 2 : Brood chamber hive with topping (honey cassette) –BCWT)

Roof

Topping (honey cassette)

Brood chamber hive

Method 3: Single Brood Chamber (SBC)

Kelulut

Aquisition of colony

1. "D.P" Direct purchase

Price guide:

Gred A : RM 1,000 >
Gred B : RM 850 >
Gred C : RM 650 >
Gred D : RM 450 >

2. "D.I.Y"

Needs:

1. **Log + colony : RM 200.00 - RM350.00**
2. **Topping hive : RM50.00- RM90.00**
3. **Tools, Equipment & Materials (TEM)**
4. **Knowledge & skills.**

1st choice

Direct purchase –easy & simple

Received the colony

Arrangement of colony in the farm

Grade A
(RM 1200>)

Grade B
(RM 1,000>)

Grade C
(RM 850>)

Grade D
(RM500>)

2nd choice

D.I.Y #1

Preparation of Log With Topping -LWT

1. Cut the log until first layer of brood appeared.

2. Clean the surface.

3. Screwed the topping hive on top of the log.

4. Placed propolis in the topping hive.

5. Put a layer of plastic.

6. Placed the cover and roof.

D.I.Y #2

Preparation of Brood Chamber With Topping -BCWT

Marking

1

Cutting

2

Inspecting

3

Put an entrance in front of hive

4

Transfer whole brood into hive

5

Put the brood at nearest angle to entrance of hive

6

Put a layer of plastic on top of hive

7

Placed new hive at the original position of colony.

8

Steps to transfer the colony into new hive brood chamber hive.

D.I.Y #3

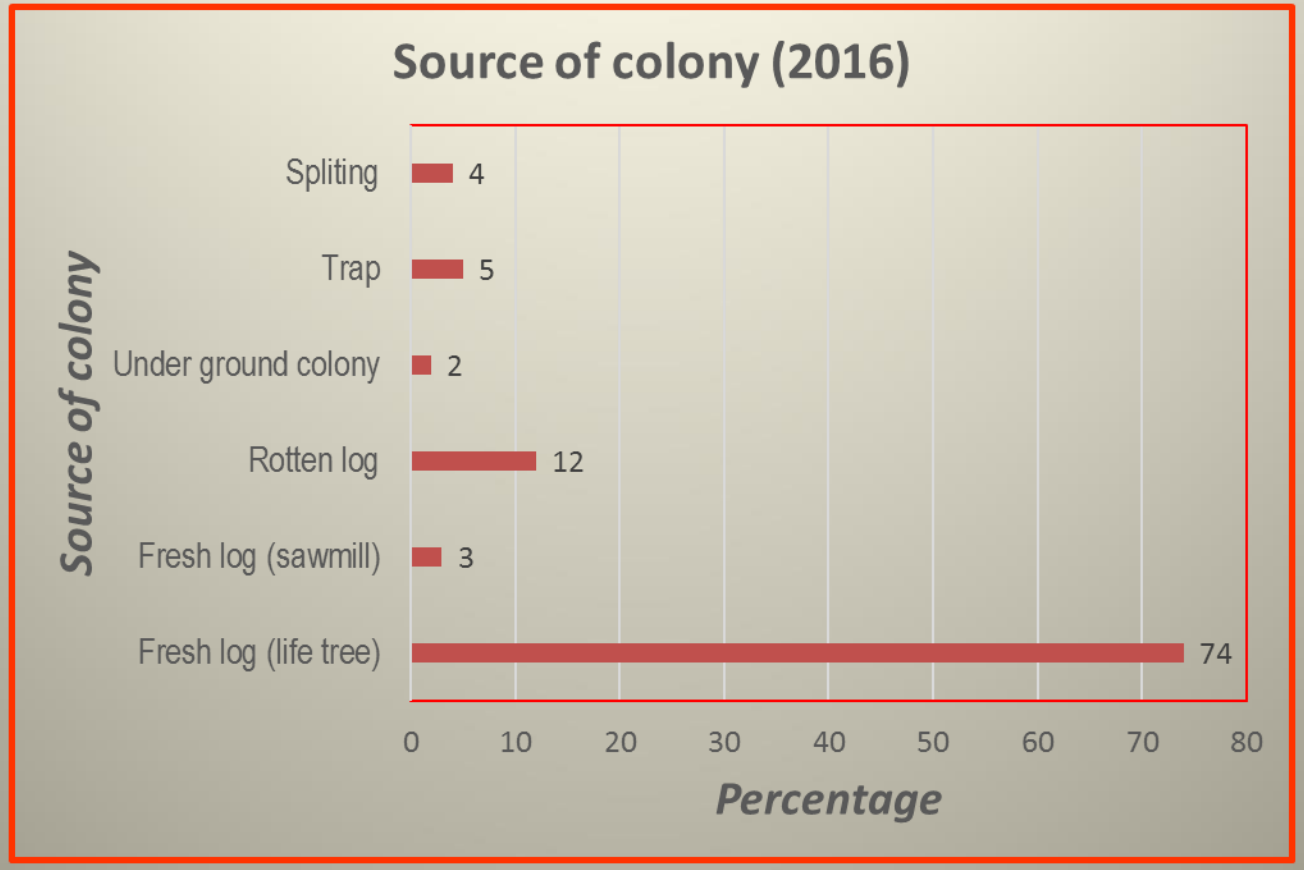
Preparation of Single Brood Chamber Hive –SBCH

= D.I Y#2

Source of colony

1. Fresh log obtained from forest
2. fresh log from sawmill
3. rotten log
4. underground colony
5. trap set in the forest
6. splitting of existing colony

Fresh log obtained from forest


Source of colony (2016)
Source of colony
Spliting
4
Trap
5
Under ground colony
2
Rotten log
12
Fresh log (sawmill)
3
Fresh log (life tree)
74
0
10
20
30
40
50
60
70
80
Percentage

Estimated trees destroyed:

- ✓ 2000 ‘Kelulut’ beekeepers
- ✓ 50 colonies/beekeeper

2,000 x 50 = 100,000 colonies

74% = 74,000 trees was chopped down

74,000 tree is equal to:

impact

Durian = 616 hectare
@120 trees/ha

Rambutan= 493 hectare
@150 trees/ha

Forest = 335 hectare


.....for sustainable kelulut farming
Fresh log should be
PROHIBITED
~ National Forestry Act 1984

....for sustainable kelulut farming

New source of colony should come from:

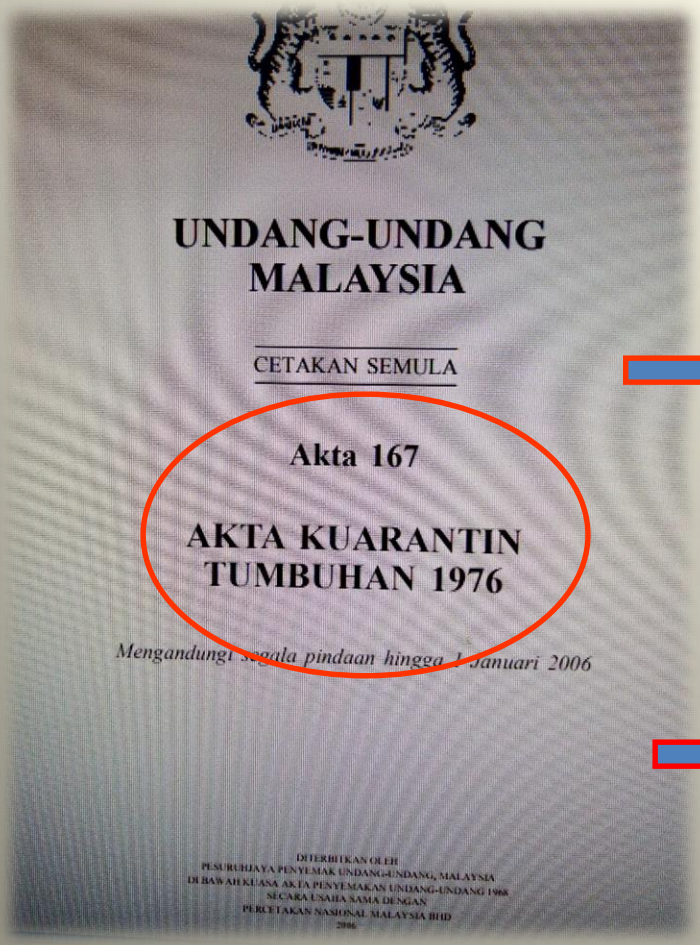
1. **Trap – design and location**
2. **Colony multiplication – eg spliting of colony ~ cut & transfer layers of brood to new brood chamber.**
3. **Import – SOP**


Traps
Design & location

Colony multiplication

….for sustainable benefits

Import & Export of stingless bee colony



UNDANG-UNDANG MALAYSIA

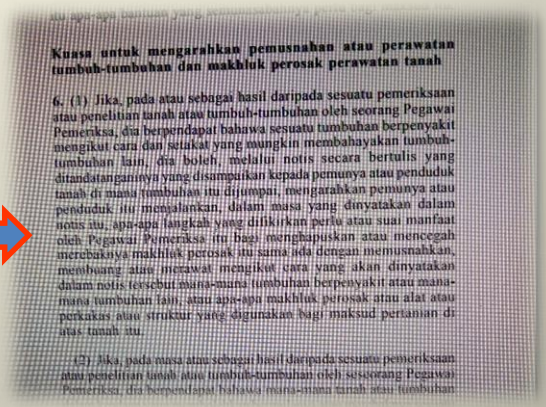
CETAKAN SEMULA

Akta 167

AKTA KUARANTIN TUMBUHAN 1976

Mengandungi segala pindaan hingga 1 Januari 2006

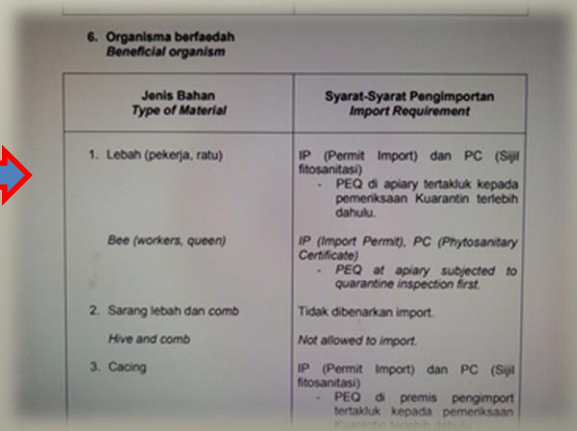
DITERBITKAN OLEH
PESURUHJAYA PENYEMAK UNDANG-UNDANG, MALAYSIA
DI BAWAH KUASA AKTA PENYEMAKAN UNDANG-UNDANG 1968
SECARA USAHA SAMA DENGAN
PERCETAKAN NASIONAL MALAYSIA BHD
2006



Kuasa untuk mengarahkan pemusnahan atau perawatan tumbuh-tumbuhan dan makhluk perosak perawatan tanah

6. (1) Jika, pada atau sebagai hasil daripada sesuatu pemeriksaan atau penelitian tanah atau tumbuh-tumbuhan oleh seorang Pegawai Pemeriksa, dia berpendapat bahawa sesuatu tumbuhan berpenyakit mengikut cara dan setakat yang mungkin membahayakan tumbuh-tumbuhan lain, dia boleh, melalui notis secara bertulis yang ditandatanganinya yang disampaikan kepada pemunya atau penduduk tanah di mana tumbuhan itu ditumpu, mengarahkan pemunya atau penduduk itu menjalankan, dalam masa yang dinyatakan dalam notis itu, apa-apa langkah yang difikirkan perlu atau suai manfaat oleh Pegawai Pemeriksa itu bagi menghapuskan atau mencegah merebaknya makhluk perosak itu sama ada dengan memusnahkan, membuang atau mengawal mengikut cara yang akan dinyatakan dalam notis tersebut mana-mana tumbuhan berpenyakit atau mana-mana tumbuhan lain, atau apa-apa makhluk perosak atau alat atau perkakas atau struktur yang digunakan bagi maksud pertanian di atas tanah itu.

(2) Jika, pada masa atau sebagai hasil daripada sesuatu pemeriksaan atau penelitian tanah atau tumbuh-tumbuhan oleh seorang Pegawai Pemeriksa, dia berpendapat bahawa mana-mana tanah atau tumbuhan



6. Organisma berfaedah
Beneficial organism

Jenis Bahan *Type of Material*	Syarat-Syarat Pengimportan *Import Requirement*
1. Lebah (pekerja, ratu)	IP (Permit Import) dan PC (Sijil fitosanitasi) - PEQ di apiary tertakluk kepada pemeriksaan Kuarantin terlebih dahulu.
Bee (workers, queen)	*IP (Import Permit), PC (Phytosanitary Certificate)* - *PEQ at apiary subjected to quarantine inspection first.*
2. Sarang lebah dan comb	Tidak dibenarkan import.
Hive and comb	*Not allowed to import.*
3. Cacing	IP (Permit Import) dan PC (Sijil fitosanitasi) - PEQ di premis pengimport tertakluk kepada pemeriksaan

3. Farm management

1. Colony management – location, maintenance, inspection, splitting, selling

2. Pest and diease management – ants, white ant, wasp, mite, animal, human, predators and source of fungus /virus / bacteria

3. Food source management – bee plants flowering calender; maintenance of bee plants, planting programme of new bee plant;

4. Harvesting – method and equipments.

5. Safety:
   (1) animal – electrical fence
   (2) human – ID code
   (3) Disaster – flood, strong wind/storm

Why colony does not occupied honey cassette?

Caused:

1. Lack of food source.
2. There is large space inside log.
3. Invaded by pest.
4. Preparation of honey cassette was not according to SOP.
5. Weak colony.
6. Too often opening the inner cover.
7. Climate change.

Colony arrangement

K.Kangsar, Perak

Taman Pertanian
Sekayu, T'ganu

Sibu, Sarawak

Sulawasi, Indonesia

Pasir Mas, Kelantan

Kota Tinggi, Johor

4. Marketing

1. **Production – estimation :**
   0.5kg/koloni/bulan

2. **Product quality– consumer perception on purity of honey, standard compliance, lab analysis,**

3. **Price***(farm)*:
   RM180–RM250/kg.

4. **Marketing strategy – direct to custommers, collecting centre, middle man, expo/exhibition, export.**

Kelulut

Revenue forcast

Nos colony	Honey yeild / month (kg)	Price/kg (RM)	Gross income (RM) / month	Net (RM) / month (deduct 30% cost of production)
10	5	250.00	1,250.00	875.00
		150.00	750.00	525.00
50	25	250.00	6,250.00	4,375.00
		150.00	3,750.00	2,625.00
100	50	250.00	12,500.00	8,750.00
		150.00	7,500.00	5,250.00

terima kasih

thank you