PHILIPPINE NATIONAL STANDARD

PNS/BAFS
ICS

Code of Good Beekeeping Practices

BUREAU OF AGRICULTURE AND FISHERIES STANDARDS
BPI Compound Visayas Avenue, Diliman, Quezon City 1101 Philippines
Phone (632) 920-6131; (632) 455-2856; (632) 467-9039; Telefax (632) 455-2858
E-mail: bafpsda@yahoo.com.ph
Website: www.bafps.da.gov.ph

Foreword

The Philippine National Standard (PNS) for Code of Good Beekeeping Practices was developed by the Technical Working Group (TWG) organized by the Bureau of Agriculture and Fisheries Standards (BAFS) through a Department of Agriculture (DA) Special Order No. 109, Series of 2015.

The TWG is composed of members coming from government institutions such as the Bureau of Animal Industry - which is the official food safety agency in charge of the commodity and the National Livestock Program under the Office of the Undersecretary for Livestock, academic institutions such as the National Apiculture Research, Training, and Development Institute, and Benguet State University, as well as private stakeholders from beekeeping groups like Apimondia and BEENET, with BAFS as Secretariat.

The proposed standard was presented and reviewed during consultative meetings with the concerned stakeholders. Comments gathered during the consultations were carefully evaluated by the TWG and included accordingly in the final version of this standard.

1 Scope

This code sets out the general principles of good practice and minimum requirements in the commercial or backyard apiaries and in wild honey hunting intended for the production of honey, royal jelly, beeswax, pollen, and propolis which applies to all species of bees.

2 Objectives

The purpose of this Code is to ensure that the final products are safe and fit for human use, while ensuring safety to bees, beekeepers and wild honey hunters without any degradation to the environment.

3 Definition of Terms

The following definitions applies only for the purposes of this Code

Apiary
the location and sum total of colonies, hives and other equipment assembled in one site for beekeeping operations.

Bee pollen
the pollen dislodged from the pollen basket of foraging honey bees and collected in a pollen trap or removed from the cells of honey bee or stingless bee colonies

Bee propolis
a sticky material used by bees to seal gaps, encapsulate foreign objects and disinfect hive materials. It is derived from resins collected from plants and consists of a mixture of terpenes and other volatile substances.

Bee smoker
device used to produce and blow smoke on bees

Beehive
domicile for colony of bees.

Beekeeping
the science and art of raising bees for man's benefit.

Beeswax
a complex mixture of lipids and hydrocarbons that is produced by the wax glands of honey bees

Commercial apiary
an apiary consisting of a minimum of 200 colonies

Competent Authority
the official government agency having jurisdiction over the commodity and has legal mandate to enforce relevant laws and regulations on the quality and safety assurance of products for local/export market intended for human use.

Honey
the natural sweet substance produced by bees from the nectar of plants or from secretions of living plants or excretions of plant-sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in the honey comb to ripen and mature

Honey Supers
a hive box or hive bodies with frames where honey is stored and ripened

Ripe Honey
honey from which bees have evaporated sufficient moisture so that it contains the acceptable moisture content

Royal jelly
a glandular secretion of bee worker that is placed in queen cells to feed queen-destined larvae

Swarm
the aggregate of worker bees, drones and a queen that leaves the mother colony to establish a new colony. Swarming is a natural behaviour of bees for the perpetuation of bee colonies.

Veterinary Drugs
any substance applied or administered to any food-producing animal, whether used for therapeutic, prophylactic, or diagnostic purposes, or for modification of physiological functions or behavior.

Wild bee hunting
the practice of gathering honey from wild bee colonies

4 Minimum Requirements

4.1 Species of Bees

The following bee species shall be considered:

a. *Apis dorsata dorsata* – found only in Palawan; locally known as *pukyutan, putyukan, ayukan*; this is the giant bee that is usually found in forested areas at higher

elevation. Yellow and black in color. When harvested ripe, this produces 40-60 kg of honey per season.

b. *Apis dorsata breviligula* – another giant bee like *Apis dorsata dorsata,* except that it is white and black in color*;* also called locally as *pukyutan, putyukan, ayukan.* This species can produce 40-60 kg of ripe honey per season.
c. *Apis cerana* – locally known as *liguan*, *laywan, anig*; when harvested ripe, this species can produce 2-5 kg of honey per season.
d. *Apis mellifera* – an introduced species in the Philippines, but is the species used commercially in most parts of the world and is the major source of commercial honey in the world market.
e. *Tetragonula* spp. – locally known as *lukot, lukutan, libog, tigtig, kiwot, kiyot*; this stingless bee species can be domesticated in hives and used for honey production and crop pollination. It produces at most 1 kg of honey per colony per season, when harvested ripe.

4.2 Source of Stock

a. Nucleus colonies and queens should be sourced only from local apiaries that are free from pests and diseases.
b. The starter colony for honeybees should contain young, mated, F1 or F2 queen with at least four frames (3 brood and one food). The colony should have a health certificate from a competent authority.
c. The starter colonies for stingless bee should not come from the wild. The colony should have a health certificate from a competent authority.
d. Only queens should be imported and must have official Phytosanitary or Bee Health Certificate issued from country of origin.
e. Importation of bee feed supplement with pollen and honey as part of the main ingredient should be avoided as these may contain pathogenic spores.
f. The importation of beeswax and wax foundations should be from OIE-cleared region. However these may be permitted if they have undergone irradiation. (See Annex A for a list of OIE-notifiable diseases for 2016.)

4.3 Location of Colonies/Apiaries

a. The colonies should be located in area where forage is abundant throughout the year or a period long enough to permit bees to hoard food.
b. The colonies should be secluded, well drained, safe from flash floods, and protected against strong winds and heavy rains.
c. A clean water source should be available within or near the apiary sites.
d. The colonies should be partially shaded to protect the bees against hive overheating in the hot sunlight.
e. The site should also be safe from destructive enemies of bees and from toxic chemicals.

f. The site should be free from disturbances caused by human beings and animals.
g. The site should be accessible to transport facilities.
h. To avoid foraging competition with bees from neighboring apiaries, and also to minimize robbing and the spread of bee diseases, apiaries should be located at least three (3) kilometers apart. If the apiaries are large, this distance should be increased.
i. The distance of the apiary of the honey bee and stingless bee from farms utilizing pesticides and industrial sites should be at least 3 km and 500 m radius, respectively.
j. In commercial apiary, it should normally consist of 20 to 40 colonies per site to prevent competition among colonies.
k. In urban or sub-urban settings, limit the number of colonies to 2-8. Place apiaries away from gates, stock yards and public traffic areas. Whenever possible, position out of sight of public thoroughfare.

4.4 Hive Material/Design

a. Standard hives for honeybees and appropriate hives for other species of bees should be used. This will allow easy management of the colonies. It should have adequate space to accommodate growing bee population and food storage.
b. For commercial apiaries, the beehive should be constructed in such a way that it is easy to remove surplus honey.
c. It should be easy for bees to store honey, especially after the surplus has been collected.
d. Materials used should be free from harmful chemicals.
e. The hive should be able to protect the bees against heat, cold, rainy or dry weather.
f. It should be convenient and comfortable for the beekeeper to work on.

4.5 Management Practices

a. The following management practices should be avoided/ are prohibited:
   - Destruction of bees in the combs during harvesting of beekeeping products
   - Clipping of the wings of the queen
   - Use of chemical synthetic repellants at the start and during honey flow season.
b. The zone where the apiary is situated must be registered together with the identification of the hives. Commercial apiaries should be registered with the Bureau of Animal Industry (BAI). Backyard apiaries should be registered with the Municipal Agricultural Office for record purposes.
c. Care should be taken to ensure adequate extraction, processing and storage of beekeeping products. All the measures to comply with these requirements should be recorded.

4.5.1 Cleaning and Disinfection/Sanitation

The following methods for the cleaning and disinfection/sanitation of the bee hives, tools and equipment include, but is not limited to:

- Scorching with blowlamp or hand held electric paint stripper.
- Sterilization using washing soda crystals (Sodium carbonate).
- Chemical sterilization with disinfectants.
- Chemical sterilization with acetic acid.
- Boiling in caustic soda (Sodium hydroxide).
- Immersion into molten paraffin wax.
- Irradiation.

4.5.2 Feeding

a. Supplemental feeding should be done during dearth period.
b. Withdraw feeding once the minor honey flow starts to ensure that there will be no residual sugar in the honey.
c. At the end of the production season, hives must be left with sufficient reserves of honey and pollen to survive the rainy season.
d. Provide good water source for the bees if there are no ponds, rivers or lakes nearby. Earthen jar with dripping faucet is ideal. Ferns such as *Azolla, Spirodella and Lemna* in mini ponds may also provide bees with suitable platform to get water.

4.5.3 Transportation of Hives

a. Appropriate measures should be taken to ensure safety of bees and the operator when transporting bees.
b. The bees must be encased in well ventilated transport boxes or hives and encased netting. Loads of bees and supers must be secured and bee-proof during overland transport.
c. When transporting colonies by air or sea, the loading pallets of bees must adhere to the requirements of the Philippine Civil Aviation and Philippine Maritime Standards as well as to the National Veterinary Quarantine procedures.

4.5.4 Pest and Disease Prevention and Treatment

a. Disease prevention in beekeeping shall be based on the following principles.
    i. The selection of appropriate species.
    ii. The application of certain practices encouraging strong resistance to disease and the prevention of infections, such as:
        - regular renewal of queen bees;
        - systematic inspection of hives to detect any health anomalies;
        - disinfecting of materials and equipment at regular intervals;
        - destruction of contaminated material or sources; and
        - replacement of old combs every two years.
b. In cases of suspected notifiable diseases, the competent authority must be informed immediately.

c. Sick or infested colonies should be isolated from healthy colonies. Movement of infested colonies should be restricted.
d. Only veterinary drugs that are registered and approved by the competent authority should be used. Vaccination, medication and treatment should be administered appropriately under the supervision of a licensed veterinarian.
e. Whenever veterinary drugs or chemicals are to be used, the type of product (including the indication of the active pharmacological substance) together with the diagnosis, dosage, the method of administration, the duration of the treatment and the legal withdrawal period should be followed and recorded.
f. In cases of mite infestation, only the allowed and recommended miticides should be used. The directions in the label should be strictly followed to prevent development of mite resistance against miticides. Except for natural acids and sucrocide, all miticides should be removed two months before the harvesting season.
g. For infestation of small hive beetles, suitable traps should be installed inside the hive. Bottom board and crevices should be cleaned once a week. Cemented flooring is also recommended to break the life cycle of the beetle. Collect all beetles found. In case of severe infestation, the hive should be burned to prevent the spread of the beetles to other apiaries.
a. Antibiotics are not allowed for treating bee diseases such as American Foul Brood (AFB), European Foul Brood (EFB) and chalk brood. In case of severe infection of AFB, the colonies should be burned, together with associated equipment. Colonies with moderate number of AFB spores can be contained using the "shook-swarm method." *(See Annex B for description of the 'shook-swarm' method.)*

4.5.5 Honey Harvesting and Storage

a. The honey gatherer should be fully protected (wearing suitable, clean bee suit, gloves, pants, veil) and should have adequate experience in harvesting.
b. A smoker consisting of fresh and dried leaves producing cool smoke should be used to drive away the adult bees during harvesting.
c. The honey should be harvested only when ripe. The moisture content of honeys from giant honey bee, *A. dorsata* and *A. breviligula* and *Tetragonula spp.* should be within the range of 21-23%. *A. mellifera* and *A. cerana* honey should contain not more than 20% moisture content. Honey may be dehumidified to further reduce the moisture content.
d. The honey comb should be cut using a sharp stainless steel knife and should be separated from the brood comb to avoid contamination.
e. The honey comb should not be squeezed, but cut into pieces to allow the honey to drip into a sterile food grade container, using a clean cloth or strainer to separate the wax from the honey. The wax can be saved for other purposes.
f. The honey comb should be brought to a clean room or laboratory to extract the honey. Ensure that the extracted honey does not contain pollen.

g. Store in clean, food grade containers.
h. Tools used should be cleaned and sanitized after each use.

4.5.6 Harvesting of Bee Pollen

a. Harvesting should be done during pollen season.
b. Suitable traps should be used to avoid mutilating bees.
c. Hives must be left with reserves of bee pollen. There should be a limited time period for collecting pollen.
d. Collected bee pollen should be dried and stored in a hygienic manner.

4.5.7 Harvesting of Beeswax

a. Old combs that are 2-3 years old should be culled and melted to get beeswax. Melted beeswax should be stored in a closed container.
b. When harvesting honey, cappings should be set aside and allowed to drip to remove residual honey prior to melting.
c. Melting can be done by solar heating, steaming or boiling.

4.5.8 Harvesting of Bee Propolis

a. Propolis is obtained using a propolis trap or a hive tool.
b. Extra care should be taken when harvesting propolis from painted hive boxes as some paint may contaminate the propolis.

4.5.9 Harvesting of Royal Jelly

a. Harvesting should be done using sterilized tools and equipment.
b. Larva should be properly separated and disposed.
c. Upon collecting royal jelly, immediately place in a sterile container and freeze.

4.5.10 Records and Traceability

a. The beekeeper must maintain updated documents of the following, containing key information to allow evaluation of compliance with the standards:
    i. Source of colony, i.e. purchase records and other related information
    ii. Should contain information of each hive or nest and problems encountered.
    iii. Map of apiary site – location of hives and honey house. Each hive should be properly labeled and listed in an inventory sheet. If the hives have to be migrated to other sites due to insufficient forage, predation or habitat disturbance, the location should be recorded on a migration plan (map), showing also the dates and new sites, and number of colonies.
    iv. List of Bee plants, and if possible flowering time or months.
    v. Total honey harvest, wax gathered and sales records.
    vi. Chemicals used, such as pesticides, within the locality of the apiary.
    vii. Disease history, including diagnosis and treatment done.
    viii. Other pertinent documents.

b. These documents must be maintained for at least three years after harvest and should be available for inspection at all times. The operator should establish a system for assuring traceability.

ANNEX A
2016 OIE-Listed Diseases, Infections and Infestations of Bees

The diseases, infections, and infestations listed below are found in the World Organization for Animal Health (OIE) list of notifiable terrestrial and aquatic animal diseases for 2016.

The list is reviewed on a regular basis and in case of modifications adopted by the World Assembly of Delegates at its annual General Session, the new list comes into force on 1 January of the following year.

For year 2016, the following are the listed diseases, infections, and infestations of bees:

1. Infection of honey bees with Melissococcus plutonius (European foulbrood)
2. Infection of honey bees with Paenibacillus larvae (American foulbrood)
3. Infestation of honey bees with Acarapis woodi
4. Infestation of honey bees with Tropilaelaps spp.
5. Infestation of honey bees with Varroa spp. (Varroosis)
6. Infestation with Aethina tumida (Small hive beetle).

ANNEX B
Shook-swarm Method

The shook-swarm method, or shaking method, is used to reduce the risk of brood disease infection, such as American Foul Brood, European Foul Brood and Chalk Brood. It aims to remove any possible reservoir of infection from the colony by removing brood combs that may contain bacterial and fungal spores.

The procedure is as follows:

1. Move the colony from its original position
2. Place a clean brood chamber with clean frames and wax foundation sheets in the original position of the colony.
3. Shake all the bees from the original hive and brush may be used to facilitate the transfer of remaining bees to the new hive
4. Feed the bees with thick sugar syrup until the foundation is 75% drawn.
5. Destroy the original colony by burning.

References:

Akratanakul, Pongthep. 1990. Beekeeping in Asia. FAO and Agriculture Organisation of the United Nations. Rome, Italy.

Brødsgaard, Camilla and Hansen, Henrik. 2001. World-wide Distribution, Early Detection and Control of American Foulbrood. Proceedings of the 37th International Apicultural Congress, 28 October – 1 November 2001. Durban, South Africa.

Bureau of Animal Industry. Introduction to Basic Backyard Beekeeping. Department of Agriculture, Philippines.

Beenet Philippines And UP Los Banos. 2011. Best Management Practices for Philippine Beekeeping. (DOST-GIA) 7P.

Cervancia, C.R., A.C. Fajardo JR., A.C. Manila-Fajardo and R.M. Lucero. 2012. Management of Philippine Bees: Stingless Bees and Honey Bees. With Bibliography of Philippine Bees. University of the Philippines Los Banos. ISBN 978-971-547-272-2. 71pp.

Council Regulation (EC) No. 1804/1999. 1999. Beekeeping and Beekeeping Products. European Commission.

Food and Environment Research Agency National Bee Unit. 2013. Hive Cleaning and Sterilisation. www.nationalbeeunit.com. Accessed September 2015.

National Apiculture Research Training and Development Institute. 2001. Beekeeping Manual. Don Mariano Marcos Memorial State University, La Union, Philippines.

OIE-Listed Diseases, Infections and Infestations in force in 2016. World Organisation for Animal Health. Paris, France. www.oie.int/animal-health-in-the-world/oie-listed-diseases-2016. Accessed January 2016.

World Organisation for Animal Health. General Introductory Text Providing Background Information for the Chapters of the Terrestrial Animal Health Code on Diseases of Bees. Paris, France. www.oie.int/en/our-scientific-expertise/specific-information-and-recommendations/bee-diseases. Accessed December 2015.

Department of Agriculture
Bureau of Agriculture and Fisheries Standards

Technical Working Group (TWG) for the Development of Philippine National Standard (PNS) Code of Good Beekeeping Practices

Chair

Cleofas F. Cervancia, MSc, PhD
Professor Emeritus and *President*
University of the Philippines - Los Baños
APIMONDIA Regional Commission for Asia

Members

Lourdes R. Ersando, DVM
Veterinarian
Bureau of Animal Industry

Albert D. Marcia
Entomologist
BEENET Philippines

Joseph A. Panas
Researcher
National Apiculture Research, Training and Development Insitute

George T. Bondot
Researcher
National Apiculture Research, Training and Development Insitute

Marcia Lanuza
Senior Technical Assistant
Office of the Undersecretary for Livestock - National Livestock Program

Cherry Ann Fajardo
Senior Administrative Assitant
Office of the Undersecretary for Livestock - National Livestock Program

Lita M. Colting
Professor
Benguet State University

Secretariat

Lara V. Navarro
Senior Science Research Specialist

Alpha P. Mateo-Lanuza, DVM
Senior Science Research Specialist

Gari Pellinor U. Hernandez, DVM
Science Research Specialist

Abbie Stephanie S. Uy, DVM
Research Assistant
Bureau of Agriculture and Fisheries Standards-Department of Agriculture

BPI Compound Visayas Avenue, Diliman, Quezon City 1101 Philippines
Telephone (632) 920.6131 / 455.2856 / 467.9039
Telefax (632) 455.2858 / 456.6552
E-mail: bafpsda@yahoo.com.ph
Website: www.bafps.da.gov.ph