

CERTIFICATION OF HONEY AND HIVE PRODUCTS AS PER EU AND OIE SPECIFICATIONS

INTRODUCTION

Organic beekeeping entails beekeeping practiced in clean environment, without intensive agriculture, or use of synthetic feed and harmful chemical for the bees [Fig 1 & 2]. For honey to be certified organic, producers have to meet a set of organic standards and conditions during the honey production (set by an organic agriculture certification body), which include source of the nectar, honey bees foraging area, bees management, honey extracting process, transportation, processing temperature, and packaging materials.



Fig 1. Community apiary sited in forest area in Mt. Kenya Region



Fig 2. Individual apiary in Government protected land in Tigray, Ethiopia

Honey that claims to be organic has to be tested to guarantee that it does not contain any residues of pesticides or environmental pollutants. Farming of organic honey is also supposed to meet rigorous and extensive monitoring and testing criteria of the certification body, for instance, the documentation of, and consultation with every land user within a three kilometre radius of the organic hives to ensure they are free of chemical residue; regular analysis and testing of honey samples; and hives have to be proven free of non-organic honey, sugar and antibiotics.

WHY ORGANIC HONEY?

Pure honey is a natural product, not manufactured by humans. So why would anyone require certified organic honey? Some people are very concerned with pesticide and fertilizer residues in their foods.

- *There's no guarantee that the bees will be foraging in flowers free of pesticides, synthetic fertilizers or pollen "drift" from genetically-modified crops [Fig 3 & 4].* Many flower field and flowering crops are sprayed with pesticides and fertilizers on a routine basis, and "drift" from genetically-modified plants can occur at far greater distances than honeybees fly from their hives.



Fig 3. Bee hives for pollination are located in Michigan apple orchard with flower blossoms in full bloom. Credit: [age fotostock](#) / SuperStock



Fig 4. Bee hives in an orchard in full bloom ready for honeybees to pollinate. <http://www.crystalsrawhoney.com>

- *There is the issue of antibiotics.* Like other living creatures, bees are unfortunately subject to a host of pests and diseases. These include the varroa mite and diseases such as American (or European) foulbrood, sac brood and nosema. Pests and diseases can quickly destroy a hive or even wipe out a colony completely; American foulbrood is particularly noted for its destructiveness.

There are a number of antibiotic treatments available to beekeepers for the various illnesses and infestations which can affect their hives, such as fumagillin (used in the treatment of nosema), Oxytetracycline, the only antibiotic in the U.S. approved for American foulbrood and Chloramphenicol (broad-spectrum antibiotic) [Fig 5 & 6].



Fig 5 & 6. Use of granular sugar with terramycin (oxytetracycline HCl) as a preventative for American foul brood disease. <http://dowgardens.wix.com/v>

- *Residues in honey.* The residues most likely to be present in honey are due to the use of medicines to treat honeybee diseases, introduced during some form of honeybee management, or from environmental pollution. Residues may be present from the following:
 - Arising from the environment
 - Heavy metals
 - Radioactivity
 - GM pollen
 - Pesticides (currently the EU has no legislation specifically concerning pesticide residues in honey, although individual EU Nations do have such legislation)
 - Bacteria
 - Introduced by the beekeeper:
 - Medicines to control the Varroa mite (predator of honeybees)
 - Antibiotics (used to control bacterial diseases of bees, mainly American foulbrood, but also European foulbrood)
 - Residues of wood preservative
 - Chemicals used in honey harvest (rarely used)
 - Chemicals to control other bee pests and predators

Therefore, concerns about traces of numerous toxic substances have prompted demand for honey that is certified organic.

On the other hand, Annex 1 outlines commodities related to bees as outlined in the OIE *Terrestrial Code*. These hive products can be certified organic alongside honey.

ORGANIC STANDARDS

Organic standards are the rules and regulations that define how an organic product must be made. Anything labelled 'organic' that is for human consumption must meet these standards as a minimum.

- Organic standards ensure that one can be certain that they are buying a genuine organic product that has been produced in line with organic principles.
- Imported organic foods must have been produced and inspected to equivalent standards.
- There must also be full traceability of organic ingredients back to the farmer.

Organic Standards include some of the following:

- East African Organic Standard – East Africa
- (EC) No 834/2007
- National Organic Programme (NOP) - USA
- Japanese Agricultural Standards (JAS) - Japan
- Naturland - German
- KRAV -Sweden
- Soil Association - UK

There are a number of different certification bodies which carry out the inspections and paperwork to ensure that the standards are being met. In some countries, organic standards are formulated and overseen by the government. The United States, the European Union, Canada and Japan have comprehensive organic legislation, and the term "organic" may be used only by certified producers.

ORGANIC MARKS

Individual certification bodies have their own service marks, which can act as branding to consumers.

- Organic marks are granted on the basis of compliance with the Standards for Organic Production used.
- This communicates the genuineness, as well as the origin of the product.
- Only certified products may be labelled with the certification mark.



United States



European Union



Germany (now EU Label used)



Canada



Japan



Naturally Natured

East Africa

OBJECTIVES OF ORGANIC STANDARDS

The objectives of organic standards include:

- Employ long term, ecological system based organic management;
- Assure long term, biologically-based soil fertility;
- Avoid/minimise synthetic inputs at all stages of product chain;
- Minimise pollution and degradation production/processing unit;
- Exclude certain unproven, unnatural and harmful technologies from the system;
- Avoid pollution from surrounding environment;
- Treat animals responsibly;
- Promote the natural health of animals;
- Maintain organic integrity throughout the supply chain;
- Provide organic integrity in the supply chain.

THE ORGANIC CERTIFICATION PROCESS

The certification process for beekeeping will include the following:

- Risk assessment;
- Awareness creation;
- Capacity building of line government ministry and partners staffs;
- Capacity building of beekeepers representatives (Group secretaries);
- Selection of field officers from the group secretaries;
- Field training of field officers;
- Beekeepers registration and internal inspection;
- Development of ICS documents;
- External inspection;
- Communication of inspection result (official conversion begins);
- Issuance of organic certificate after the subsequent external inspection;
- Continuous capacity building of beekeepers at community level.

EU REGULATIONS ON CERTIFICATION REQUIREMENTS

The most important requirements for organic beekeeping according to EU Regulation are as follows:

- Organic bee colonies must be situated within a radius of 3 km (EU regulation) or four miles (UK Soil Association standards) from the apiary site, nectar and pollen sources consist essentially of organically or very extensively produced crops and/or natural vegetation.
- The hives must be made of natural materials, without synthetic paints/varnishes/preservatives.

- Agents for pest control as well as cleaning and disinfection are limited to a few permitted agents (Annex II of EU Regulation (EC) N° 889/2008).
- The bee wax for new foundations must in principle originate from organic production units and must not be treated with unacceptable pest control agents.
 - Normally, the wax has to be replaced by certified organic wax during the conversion year.
- At end of production season the hives must be left with reserves of honey and pollen sufficiently abundant to survive the period without nectar/honeydew.
 - Artificial feeding of colonies is only allowed as exception and with certified organic honey or otherwise organically produced sugar products.
- Diseases must be prevented as far as possible. If in spite of preventions the colonies become sick or infested, legally permitted phytotherapeutic and homeopathic products shall be used in preference to allopathic products.
 - Use of allopathic medication for preventive treatment is prohibited.
 - For treatment of *Varroa jacobsoni* only the following products are permitted: formic acid, lactic acid, acetic acid, oxalic acid or menthol, thymol, eucalyptus and camphor.
- Appropriate breed shall be chosen with regard to optimal adaptation to local conditions and disease resistance. NO genetically altered bee species may be used.
 - In principle bees for organic apiaries must originate from certified organic apiaries.
 - For first certification, all colonies (not certified organic yet) will undergo one year conversion period.
- Use of synthetic repellents during harvest is prohibited. Destruction of bees in the combs as a method associated with the harvesting of beekeeping products is prohibited.
 - Removal of supers and the honey extraction must be duly documented. All handling activities must assure that the organic products are not commingled with other products and not contaminated.

- All apiaries in the same area from the same operator must be managed organically.

BENEFITS OF ORGANIC CERTIFICATION

- Organic certification verifies that the farm or handling facility complies with organic regulations.
- This certification allows one to sell, label, and represent their products as organic.
- Use of the organic logo on products to demonstrate compliance and communicate to clients (retailers, traders, importers, etc.)
- Ensure greater access to existing and fast-growing markets
- Help protect the environment from harmful products and processes and preserve animal welfare

Becoming certified organic helps farmers:

- Receive premium prices for their products (honey and hive based products);
- Access local, regional, and international markets;
- Protect natural resources;
- Support local economies;
- Access additional funding and technical assistance programs.

REFERENCES

Council Regulation (EC) No 834/2007 of 28 June 2007 on Organic Production and Labelling of Organic Products and Repealing. Regulation (EEC) No 2092/91

FiBL (2011) African Organic Agriculture Training Manual. Version 1.0 June 2011. Edited by Gilles Weidmann and Lukas Kilcher. Research Institute of Organic Agriculture FiBL, Frick. ISBN 978-3-03736-197-9

OIE (2013) Terrestrial Animal Health Code 2013. Vols. I & II, Ed. 2013

Zonis S. (2006) Flowers and Flight: Organic Honey. Organic Matter, November, 2006

ANNEX 1

OIE: Commodities Related to Bees and International Trade

The OIE Terrestrial Animal Health Code (Terrestrial Code) sets out standards for the improvement of terrestrial animal health and welfare and veterinary public health worldwide, including through standards for safe international trade in terrestrial animals (mammals, birds and bees) and their products. The following bee products are included in the *Terrestrial Code*.

Bee products (obtained from apiculture or otherwise harvested) that can be traded include: honey, bee-collected pollen, propolis, beeswax, royal jelly and honey bee venom.

a) Honey:



For the purpose of the *Terrestrial Code*, honey is the natural sweet substance produced by honey bees from the nectar of plants or from secretions of living parts of 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 (Definition from the Codex Alimentarius, Revised Codex Standard for Honey, CODEX STAN 12-1981, Rev.1 [1987], Rev.2 [2001]). Three forms of honey can be found in the *Terrestrial Code* chapters: extracted honey, comb honey and strained honey.

- *Extracted honey*: any honey removed from the comb.
- *Comb honey*: honey kept inside the comb.
- *Strained honey*: extracted honey that has at a minimum passed through a filter of pore size not greater than 0.42 mm diameter (35 mesh standard, see Townsend G.F. (1975) Processing and storing liquid honey. IN Honey - a comprehensive survey, ed. E Crane, Heinemann, London, pp. 269-292).

When the term honey is used, it refers to all the three forms.

Honey is traded mainly for human consumption. It may also be used externally (wound healing) and be further processed into a multitude of products. Honey can be traded to feed honey bee colonies.

b) Bee-collected pollen:



Pollen consists of the male reproductive cells of flowering plants. Bees use nectar or honey and salivary secretions to agglutinate and preserve pollen grains. For the purpose of the *Terrestrial Code*, bee-collected pollen is 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 bread).

Pollen is traded mainly for human consumption, but may also be used for animal consumption (including bee consumption).

c) Propolis:



For the purpose of the *Terrestrial Code*, propolis is 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. Two forms are found in the *Terrestrial Code* chapters: processed propolis and unprocessed propolis.

Processed propolis is either alcohol extracted (tincture) or powdered.

d) Beeswax:



For the purpose of the *Terrestrial Code*, beeswax is a complex mixture of lipids and hydrocarbons that is produced by the wax glands of honey bees. Two forms are found in the *Terrestrial Code* chapters: processed and unprocessed beeswax. Processed beeswax is beeswax produced by heating the raw wax to at least 60°C and then allowing it to solidify. Unprocessed

beeswax is any wax coming from bees that has not followed the process described above. When the term beeswax is used, it refers to both forms.

e) Royal jelly:



For the purpose of the *Terrestrial Code*, royal jelly is a glandular secretion of honey bee worker that is placed in queen cells to feed queen-destined larvae. It is harvested and preserved by freezing or

lyophilisation. Royal jelly is traded mainly for use in the cosmetic industry and in the human health food market.

f) Honey bee venom:



For the purpose of the Terrestrial Code, bee venom is a complex mixture of proteins and low molecular components secreted by the venom glands of honey bees and used to defend the colony. It is collected by special collectors that are placed in or outside the hive, electrically stimulating the bees to sting through a membrane on a glass plate. Venom is used in the treatment of certain human medical conditions (apitherapy).