



Food Safety Best Management Practices for Producing Honey in New York State



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Table of Contents

New York State Honey	4
Maintaining a Clean and Safe Space for Extracting and Bottling	4
Cleaning Practices for Each Extraction Day	5
Maintaining Clean and Safe Equipment and Packaging.....	5
Keeping Animals out of the Honey House	6
Record Keeping	7
Packing and Labeling Honey Containers	7
Marketing Honey as “Raw”	7
Added ingredients	7
Grading honey	7
Ensuring Hygienic Food Handlers.....	8
Preventing Contamination of Honey	8
Preventing Fermentation from Yeast	8
Preventing Sugar Contamination of Honey.....	8
Preventing Antibiotic, Antimicrobial, and Miticide Contamination of Honey.....	9

New York State Honey

New York State is home to a diverse beekeeping industry. There are an estimated 3,000 beekeepers across the state who manage 80,000 colonies for honey production, bee sales, value-added products, and pollination services. New York State's temperate climate and rich soil regions support the growth of a variety of flowers that are responsible for the diverse flavors and colors of honeys unique to this region. New York is a major honey producing state, consistently among the top 15 producers in the country.

New York beekeepers strive to use the most ethical and humane practices to maintain healthy honey bees. Their honey is minimally processed to keep pollen, enzymes, and delicate flavors intact. The trace vitamins, minerals, and natural antibiotic properties of honey make it a gourmet specialty food and are important qualities to consumers. Maintaining a high-quality product from hive to jar is a priority that requires beekeepers to maintain strict standards of food safety. By following the best management practices (BMPs) outlined in this manual, consumers can feel safe and confident that NYS Grown and Certified honey is free from contaminants and additives, and that it contains the naturally beneficial properties that make honey valuable. In order for beekeepers to have their honey certified by NYS Grown and Certified program, 100% of the honey must be produced in New York State.

Producing high quality honey does not begin in the honey house or extracting room; it begins in the apiary. New York beekeepers should follow BMPs in the field to maintain healthy honey bees with sufficient populations to produce a profitable surplus. A comprehensive guide for beekeeping best management practices can be found on the **Honey Bee Health Coalition** website (<https://honeybeehealthcoalition.org/hivehealthbmps/>).

This manual contains recommendations for maintaining a clean and safe space for extracting and bottling, developing hygienic food handling protocols, following acceptable labeling and packaging requirements, and ultimately preventing the contamination of honey. Honey producers are strongly encouraged to follow these recommendations.

Maintaining a Clean and Safe Space for Extracting and Bottling

- The exterior of the honey house is of suitable construction and is in good physical repair.
- The honey house (or extracting/bottling room) has sufficient space to accommodate operations.
- The interior floors, walls, ceilings and fixtures are of suitable construction, clean, and well maintained.
- Rooms, compartments, places, equipment, and utensils used for preparing, storing, or otherwise handling the product, and all other parts of the operating premises, are kept in a clean and sanitary condition.
- If the owner or operator received a sanitary inspection by the Division of Food Safety, the Notice of Inspection must be clearly posted near the entrance of the honey house.
- Air system or transfer lines are clean, properly constructed, and in good repair.

- The honey house (or extracting/bottling room) has access to electricity, running water, and good floor drainage.
- There are concrete or tile floors with drains in each room where extracting, processing, and bottling occurs. Concrete floors should be sealed so not to allow the acidic honey to destroy the floor. These floors are easy to mop with water to promptly clean up honey spills. Floors not made of concrete or tile can alternatively be treated with a paint, acrylic, or other treatment to facilitate easy cleaning and to protect them against acid wear from honey. There should be no back up or leaking of water or sewage from floor drains.
- A closed storage cabinet - preferably metal - is used to store cleaning solutions. When using chemical cleaners, copies of the Safety Data Sheets for those materials are in or near the cabinet.
- Properly installed sinks are available for cleaning small pieces of equipment, ideally with both hot and cold water faucets (including employee handwashing facilities). Separate sinks must should be maintained for equipment cleaning and handwashing. Water in the honey house is potable. The beekeeper is prepared to present certification of water potability or disinfection. The water source is tested each year due to the need for safe water for cleaning equipment and for maintaining personal hygiene. Municipal water test reports can be obtained from the operator by all users of that water. Wells, whether drilled or dug, are tested at least annually by a capable laboratory to ensure that water used is free of microbial (*E. coli* and other coliform bacteria), physical, or chemical contamination and only used if it meets standards for safe drinking water.
- Toilet facilities are properly installed, equipped, and maintained.
- Honey and water conduct electricity. Electrical wires and outlets are protected with waterproof fittings and coverings to reduce the chance of shock.
- Interior trash containers are covered and emptied when filled or sooner. Dumpsters and other trash containers are located as far as possible from the building and are emptied regularly.

Cleaning Practices for Each Extraction Day

- The honey house (or extracting/bottling room) is thoroughly cleaned and mopped at the beginning and end of each extraction/processing day to deter pests and reduce the potential for honey contamination. All working surfaces are cleaned with water, rinsed, and then sanitized.
- Honey drums and other containers are tightly closed. Surfaces that contain honey residue (e.g., counters, packaging systems, etc.) are washed down.
- Building surfaces - walls, ceiling, floors - are checked to make sure all cobwebs, dust and dirt are removed.
- Full trash receptacles are brought to the dumpster.

Maintaining Clean and Safe Equipment and Packaging

- All equipment and utensils used in processing or handling of the product are maintained in good repair to assure sanitary conditions in the operation.

- At the end of the honey extraction season, all equipment is cleaned by hot water, power washing, or approved cleaning agents followed by the application of a food-safe sanitizer. Buckets are thoroughly dried before stacking and putting them away for the year. At the start of the next season, buckets and other honey containers are washed with water and/or approved cleaning agents, followed by the application of a food-safe sanitizer solution. Rinsing is required after using detergents only. Food grade sanitizers used at the correct concentrations do not require rinsing and should not be rinsed.
- Honey extracting and processing equipment is made with stainless steel to ease cleaning and to last a long time. Iron and steel equipment can rust over time and can darken honey if they remain in contact for long periods of time. Honey equipment should never be made of lead.
- Barrels, buckets, or bottles that store honey are made from or coated with food grade materials.
- Containers that have ever held a hazardous material, stored potential allergens (such as dairy, nuts, nut oils, soy, or wheat), or are lined with paint are never used to store honey.
- All honey drums are examined inside using a bright light before use and are thoroughly cleaned using steam or potable water.

Keeping Animals out of the Honey House

- No animals (including insects and arachnids) except honey bees, *Varroa* mites, small hive beetles, or wax moths are allowed in the honey extraction, processing, and bottling facilities. The honey house is bee-proof, so no bees or wasps can enter from the outside. Any windows that may be left open have screens.
- It is recommended to have a screened window in the hot room and extraction room of the honey house with a small bee escape. Any bees that enter with the supers will be drawn to the window and find their way out.
- Every practicable precaution is taken to exclude birds, rodents and other vermin and animals from the premises of the operation. Family pets are not permitted in the honey house (or extracting/bottling room). A variety of traps can be used to monitor presence of and eliminate mice or rats without use of poisons. Snap traps or live traps baited with peanut butter are particularly effective if placed along walls or in hidden areas where rodents travel and hide. Glue traps and flypaper can also be used but should be kept away from food preparation areas. Boric acid traps for ants are safe for use indoors. Keep all doors and windows in good operating order and tightly closed. Install door sweeps under all doors to prevent rodent entry. Seal all cracks and crevices around wires pipes and vents to deter pest movement into and within the building.
- Although mouse or rat poisons should not be used inside the honey house because of the risk of contaminating honey, it is acceptable to use them outside the honey house in clearly marked bait stations only when applied by a licensed pest control applicator. Bait stations should be tamper-resistant and attached to some solid object to protect humans and pets from potential injury or death.

Record Keeping

- A simple log of every honey drum or batch is kept. Date produced, grade, moisture content, weight (or volume), and container ID number is written in the log. Each drum or batch is marked with the honey grade and the date produced/packed. At least one sample jar per drum/batch packed is labeled and kept as a record of the honey characteristics. Logs are kept for at least 3 years from the date of disposition.
- Consider keeping a log of all cleaning and sanitization.

Packing and Labeling Honey Containers

- Retail containers are ideally packed immediately prior to sale so that they maintain the maximum possible shelf life. Finished product does not go into previously used containers; only retail containers that are new, undamaged, clean, dry, and free of foreign matter are used.
- All honey buckets/barrels/jars for packaging are properly labeled. Follow labeling regulations that specify product name, grade, net quantity of contents, and producer's name and complete address (PO box is ok). See **The National Honey Board** (honey.com) for US label laws and the **Cornell Pollinator Website** for New York State label laws (<https://pollinator.cals.cornell.edu/resources/business-resources/>).

Marketing Honey as “Raw”

- If a producer markets their honey as raw on the label, they must abide by the **National Honey Board's** definition of raw honey: “honey as it exists in the beehive or as obtained by extraction, settling or straining without adding heat.”
- To preserve naturally-occurring enzymes and flavors, New York State beekeepers must not subject their honey to temperatures above 104°F during extracting, processing, bottling, or storage.
- To separate air bubbles, wax, and other debris from honey while still preserving pollen content, it is best if producers use the settling method. If producers must strain their honey to remove bee parts and larger debris, they should use a strainer no smaller than 600 microns.

Added ingredients

- Honey that is infused with flavors or has been combined with other ingredients is considered processed and the producer may be required to obtain a Food Processing Establishment License – Article 20c
<https://www.agriculture.ny.gov/FS/general/license.html>
- Added ingredients must be declared on the label in order of predominance, by weight.

Grading honey

- Follow the **United States Standards for Grades of Extracted Honey**:
https://www.ams.usda.gov/sites/default/files/media/Extracted_Honey_Standard%5B1%5D.pdf

Ensuring Hygienic Food Handlers

- Employees maintain a high degree of cleanliness and take precautions to prevent contamination of foods from perspiration, cosmetics, chemicals, medicine, etc.
- Food handlers do not handle foods when ill with a disease transmissible by foods, or if they have infected cuts or burns on their hands.
- Food handlers must wash hands thoroughly after contaminating them (using the bathroom, eating lunch, handling money, etc.).
- Employees wear clean clothing, effective hair restraints, and use no jewelry except a plain, non-stoned wedding band.
- Eating, drinking, or use of tobacco occurs in areas separate from honey extracting, processing, and bottling.

Preventing Contamination of Honey

- The use of insecticides, rodenticides and other pest control items in such establishments are permitted by a licensed pest control applicator, only when needed and in accordance with label instructions. Precautions and restrictions are taken to prevent the contamination of honey.
- Only chemicals used in the maintenance or cleaning of extraction and honey processing equipment are stored in the honey house. Pesticides (including miticides), antibiotics, or poisons are example of items that are never to be in the rooms used for honey extraction, processing or bottling.
- If filtering honey with diatomaceous earth, only food-grade diatomaceous earth is used.
- After honey is run into barrels, buckets, or bottles, it is promptly covered with a lid.

Preventing Fermentation from Yeast

- To prevent fermentation, moisture content is determined to be 18.6% or less in capped honey frames before honey is extracted.
- To prevent fermentation, only frames that have at least 80% capped honey are extracted. Frames that contain more than 20% uncapped honey (nectar) can increase the likelihood of fermentation.
- If honey is determined to be above 18.6% moisture content after extraction, it is blended with lower moisture-content honey to reduce the overall moisture level. Honey can be strained, heated, pasteurized, or minimally processed. If moisture content is kept below 18.6%, all of these honeys do not pose a risk of fermentation.

Preventing Sugar Contamination of Honey

- Honey that has added glucose, dextrose, molasses, sugar syrup, invert sugar, flour, high fructose corn syrup, starch, or any other similar product, other than floral nectar is **not** honey. Under no circumstances can any of these ingredients be added to honey.
- To prevent contamination of honey with sugar syrup, sucrose, or high fructose corn syrup, feeders should be removed before supers are added to the hives. Empty feeders can remain inside the hives. There should be no open barrel feeding when supers are present on colonies.

Preventing Antibiotic, Antimicrobial, and Miticide Contamination of Honey

- In the event that colonies are treated with antibiotics or antimicrobials, **all supers must be removed** during application and cannot be replaced until the period outlined Table 1.

Table 1. Honey bee treatments and the period to wait before replacing supers.

<i>Antibiotics and Antimicrobials</i>		
Medication or Treatment	Parasite or Disease Treated	Period to wait before replacing supers
Oxytetracyclin	American foulbrood European foulbrood	6 weeks*
Tylosin	American foulbrood European foulbrood	4 weeks* †
Lincomycin	American foulbrood European foulbrood	4 weeks* †
Fumagillin	<i>Nosema</i>	Immediately following treatment end date*
<i>Miticides</i>		
Menthol (Mite-A-Thol®)	Tracheal mites	Immediately following treatment end date
Api Life Var®	<i>Varroa</i> mites	1 month
Apivar®	<i>Varroa</i> mites	2 weeks*
Apistan®	<i>Varroa</i> mites	Immediately following treatment end date*
Apiguard®	<i>Varroa</i> mites	Immediately following treatment end date
Checkmite+®	<i>Varroa</i> mites and small hive beetles	2 weeks
Oxalic acid	<i>Varroa</i> mites	2 weeks
HopGuard II®	<i>Varroa</i> mites	Supers can remain in place during treatment*
Mite Away Quick Strips® or Formic Pro®	<i>Varroa</i> mites	Supers can remain in place during treatment

* Honey must not be removed from the brood nest when this treatment is used.

† Residues of this antibiotic have been shown to remain in honey for longer than four weeks. It is recommended this treatment is only used in autumn (not spring) and only if the bacteria have demonstrated confirmed resistance to oxytetracyclin.