



Getting a Taste: Honey Sensory Descriptive Analysis

Amina Harris, Director



What is the Center

Mission: *Helping UC Davis to become the world's leading authority on bee health, pollination, and honey*



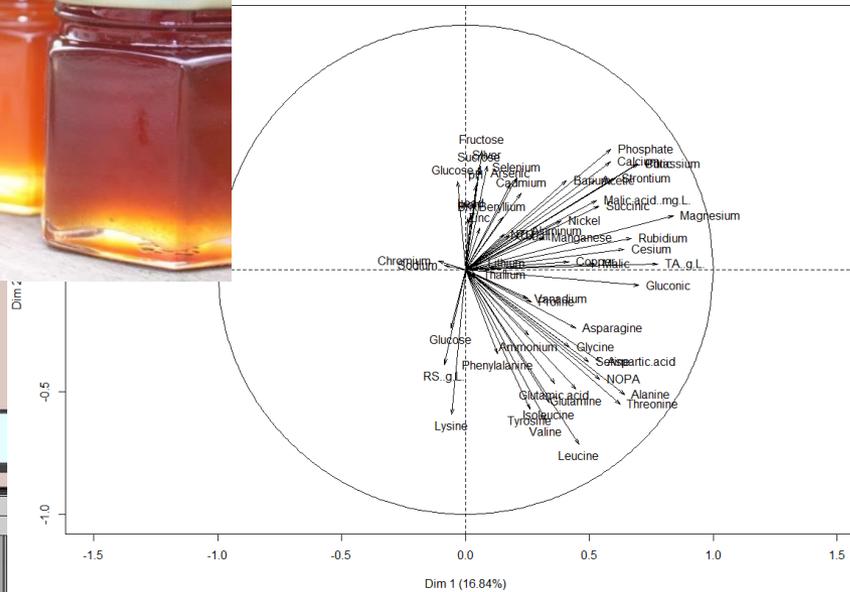


Honey Research

Sensory Exploration • Pollen Analysis Aromas and Nutrition



Variables factor map (PCA)





What is honey?

Canadian Definition: B.18.025 [S].
Honey shall be the food produced by honey bees and derived from
the nectar of blossoms,
secretions of living plants, or
secretions on living plants

The addition of foreign sugars to a food represented as honey, such as in the form of corn, rice or cane sugar syrup, is not permitted. Such a practice is considered adulteration and a contravention of the FDA and SFCA. Adulterated honey is not allowed to be sold as honey in Canada.





Making Honey



(c) Kathy Keatley Garvey

- Worker bees are females. They do all the work in a hive – brood rearing, pollen and nectar collection, cleaning and nursing.
- A honey bee gathers nectar from an assortment of flowers. Nectar is very high moisture – About 80% water.
- A worker bee's tiny body is capable of carrying half her weight in nectar.
- While in flight, nectar is mixed with the enzyme invertase.



Back at the hive



- Bees pass the nectar one to another reducing the moisture.
- Next the worker bee deposits small droplets of nectar into various parts of the cell. Bees fan the nectar dehydrating it to about 17-18% moisture. Now it has become thick, sweet honey.



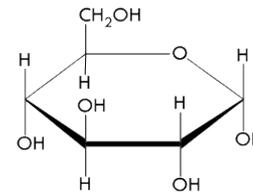


Honey composition

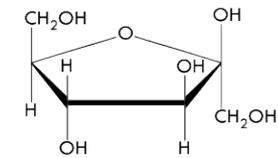
	% by weight		% by weight
Water	17	Other disaccharides	7
Fructose	38	Higher Sugars	1.5
Glucose	31	Acids	0.6
Sucrose	1.5	Minerals	0.2

"On Food and Cooking"; Harold McGee

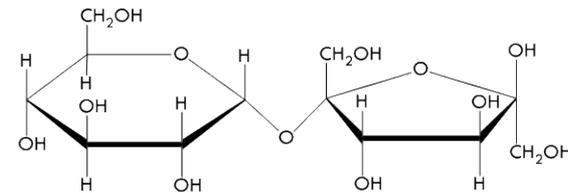
Invertase:
Sucrose → Glucose + Fructose



Glucose



Fructose



Sucrose



Mono-Varietal Honey



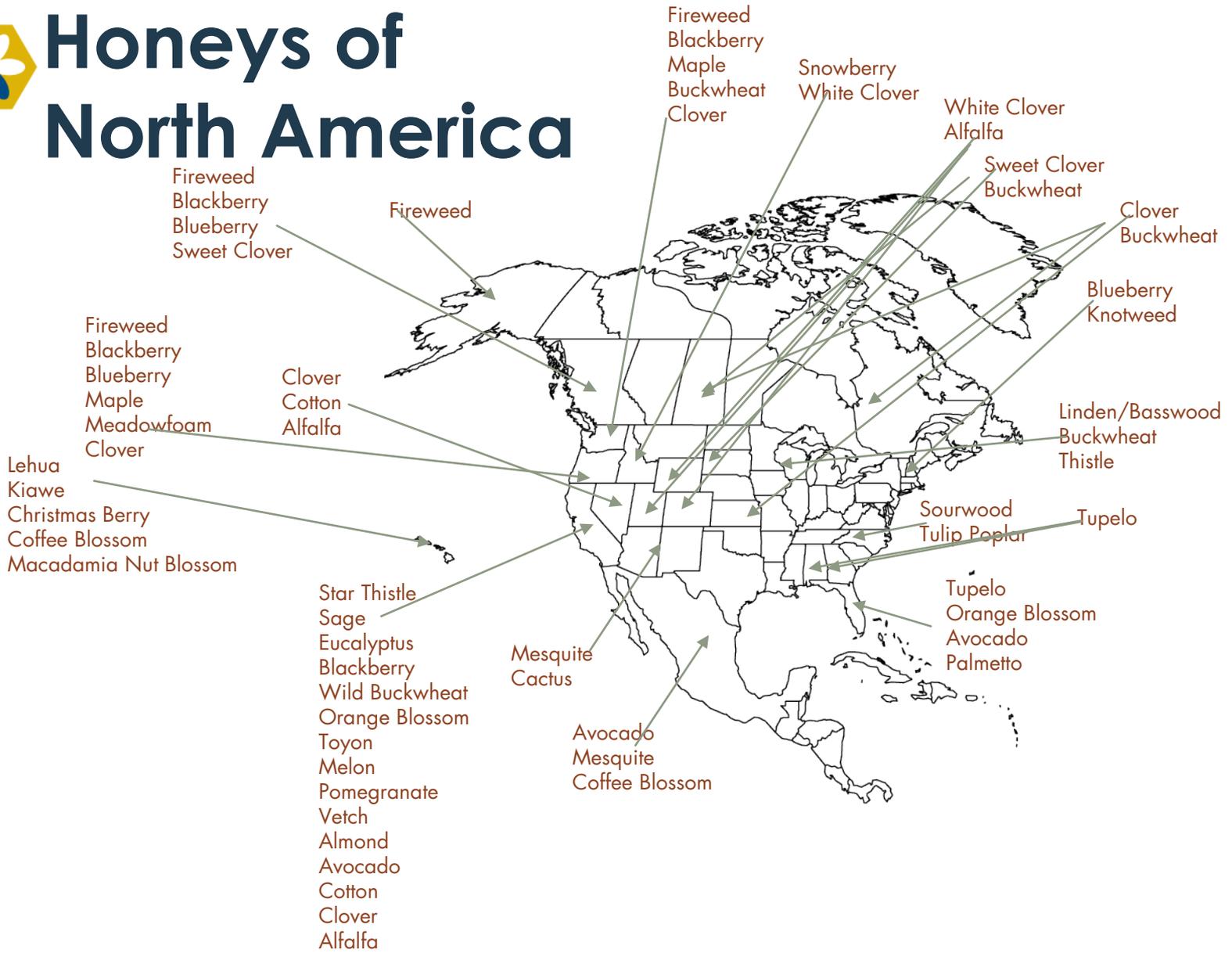
- Single floral Source – Not blended
- Packing and Labeling issues
 - *US guidelines allow single varietal honeys to be blended*

Eg: **Orange Blossom Honey** can be
27% orange blossom
25% wildflower
25% cotton
23% alfalfa

Clover Honey can be
27% clover
25% wildflower
25% cotton
23% alfalfa



Honeys of North America





What is Sensory Evaluation?

- Sensory evaluation enables a trained taster to distinguish the botanical origin of honey and to identify and quantify the honey sensory profile as well as possible defects. Honey sensory evaluation can also help in defining standards for labeling control and provide useful information for the consumer.





Tools for the Taster

- Honey Profiling Form
- Pfund Color Guide
- UC Davis Honey Wheel
- Aroma References
- Selection of Honeys in either glass or plastic cups
- Plastic tasting spoons
- A consistent tasting technique



HONEY SENSORY PROFILING FORM

HONEY	COLOR	AROMA	TASTE / FLAVOR	TEXTURE / MOUTHFEEL	FINISH / AFTERFLAVOR

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Color

- Use the PFUND Honey Color Guide
- Hold the transparent cup of honey against a white surface to determine the approximate color range of your honey.
- Water White, Extra White, White, Extra Light Amber, Light Amber, Amber, Dark Amber.



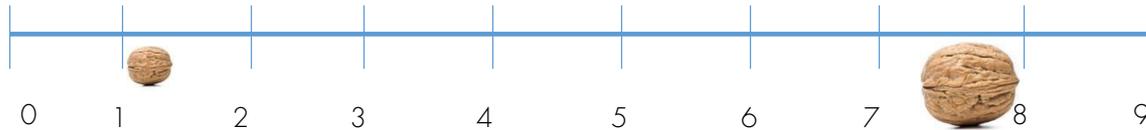


Aroma: What do You Smell?

➤ Intensity with an Interval Scale:

➤ Low

High

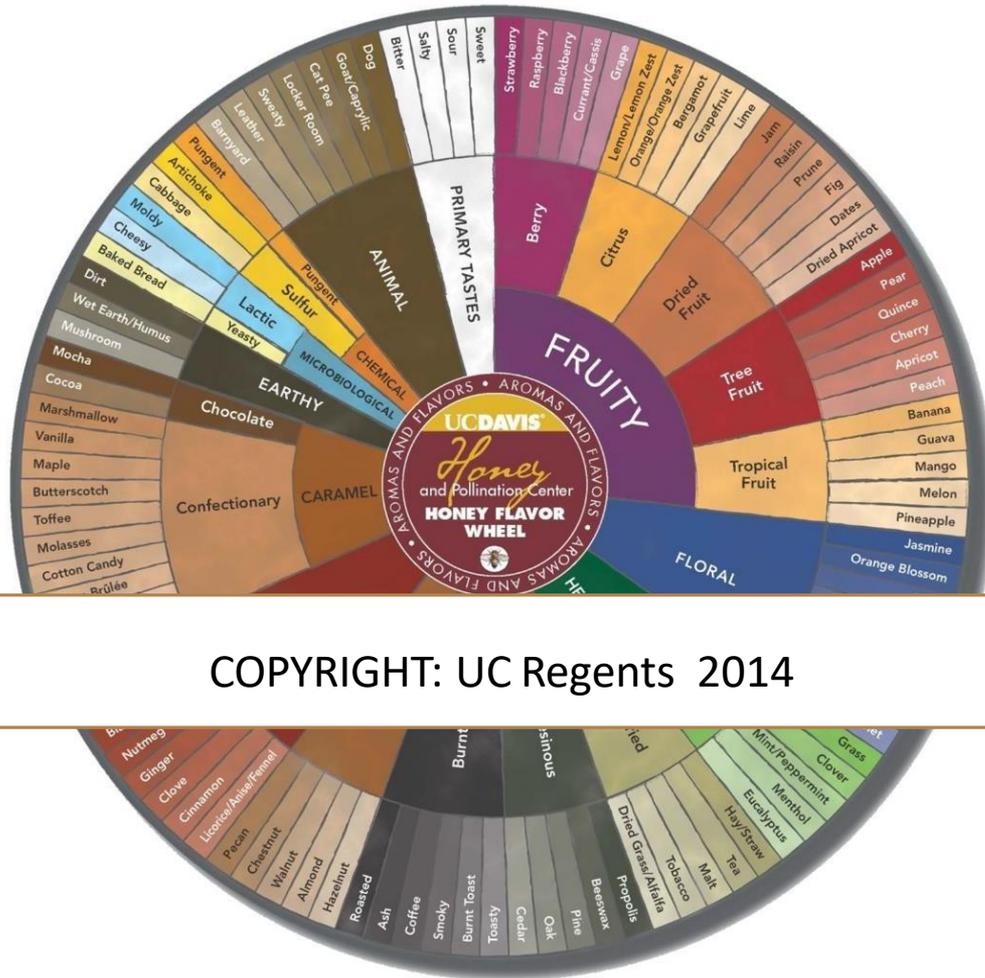


➤ Description: Your memory is your best tool. Use it to recall anything and everything you have ever smelled.

➤ Honey Wheel: Gives language to what you might have trouble naming.



UC Davis Honey Wheel



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Taste: What it's all about!

- Describe the taste
- Describe the retronasal aromas
 - Exhale through your nose
- Is it astringent
 - A drying or puckering effect in your mouth
- Describe its texture
 - Is it viscous or crystallized
- How long does the flavor last?



Method for evaluation:

- Pick up the honey tasting cup, keeping it covered. Place it in the palm of your hand and hold it with your fingers closed around it, rub it on the palm of your hand to elevate the ambient temperature of the honey
- Remove the top. Use the plastic spoon and rotate clockwise 3 times to release more aromas
- Bring the tasting cup to the nose and smell. Wait a short interval of 3 to 4 seconds and smell again. Smell 3 to 4 times, always with a pause of a few seconds in between.
- Insert the stick in the tasting cup again and rotate clockwise for 3 times. Take a small amount of honey, place it in your mouth, and let it coat the whole oral cavity (tongue, gums and roof), and let it melt. With your mouth closed, breathe out through your nose;
- As the honey melts, continue to breathe out through your nose;
- Finally, swallow the honey.



Fireweed Honey

Chamerion angustifolium

British Columbia, Alaska, Oregon, Washington

A rare honey that is non-crystallizing. The flowers are the first to grow and bloom after forest wildfires when new tracts of land become open to the sky.





Blackberry

Rubus armeniacus

British Columbia, Oregon, California

Blackberries grow rampant all over North America. Purer varieties tend to come from British Columbia or Oregon where few other flowers bloom at the same time.





Terms Used for Honey

- Unheated: We assume this means the honey has not been 'over heated' or pasteurized
- *Temperature in a beehive is between 95° - 125°*
- Unfiltered: All honey must be filtered enough to remove dirt, wax and bee parts.
 - Some honeys are filtered through paper baffles
 - Some through mesh screens of varying sizes
 - Some is minimally filtered and settled
- Raw: Assumed that the honey has not been heated or filtered



Orange Blossom

Citrus spp.

Central and Southern California

A light aromatic honey that may include nectar collected from oranges, lemons, limes and grapefruit. The correct name should be Citrus Honey. Orange Blossom is also produced in Florida.





Wildflower



Bees get to roam the truly stunning vistas of British Columbia, collecting an abundance of nectar and pollen from Wildflowers.





Blueberry

Vaccinium sect. *Cyanococcus*

British Columbia, Oregon, Maine, Quebec



Wonderful blueberries, native to North America are now grown in many parts of Canada and the United States.

Though Honey Bees are used to pollinate blueberries, their native pollinators use buzz pollination. The bee pictured above is a Southeastern Blueberry Bee.



Meadowfoam

Limnanthes alba

Southern Oregon



Native to the west coast, the tiny flower is naturally found around vernal pools each spring. It has an oil that is widely used for cosmetic purposes.



Organic & Non-GMO Certification

Organic: Canada has organic honey – Restrictions?

No honey produced in the continental United States is certified organic.

IF a honey carries the USDA LOGO it is supposed to have the country of origin NEXT to it in the same size type

Honey is Intrinsically NonGMO

Honey is not a plant
It is not genetically modified!





Mythbusting

CHECK YOUR SYMPTOMS

FIND A DOCTOR

FIND LOWEST DRUG PRICES

WebMD

HEALTH
A-Z

DRUGS &
SUPPLEMENTS

LIVING
HEALTHY

FAMILY &
PREGNANCY

NEWS &
EXPERTS

HOME ALLERGY TREATMENT HOME

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Find an Allergist

Allergies > Feature Stories >

Does Honey Prevent Allergies?

By Paige Fowler



FROM THE WEBMD ARCHIVES ⓘ

You're buried beneath a mountain of tissues and can barely keep your eyelids open after a dose of [allergy](#) meds. You remember hearing that small amounts of local honey can help keep sniffles at bay. Does it work?

Theory vs. Practice

The idea that honey can prevent [allergies](#) ✓ is based on a concept called immunotherapy. The theory makes sense, but there are problems.

It boils down to this, says allergist Neeta Ogden, MD: You get a tiny amount of the thing you're allergic to, which can make you less sensitive to it.

Over time and with bigger doses, your body builds up immunity to the allergen. It's the same idea behind [allergy shots](#).

Some people think eating local honey works the same way because it contains [pollen](#). One issue with that theory: There's no way to know exactly



USDA Organic Labeling



Nutrition Facts	
Serving Size 1 Tablespoon (17g) Servings Per Container 20	
Total Fat	0g
Sodium	0mg
Total Carb	17g
Sugars	17g
Protein	0g

MONEY THE WAY IT SHOULD BEE...
Produced on traditional family farms in Central and South America. The beekeepers tend their hives deep in the jungle where the honeybees forage on wildflowers. Do not feed honey to infants under 1 year. All honey crystallizes, place bottle in warm water to liquify.

Ingredients: Organic Honey
Distributed by Wholesome Sweeteners, Inc.
Sugar Cane, 11 71979
Certified Organic by Quality Assurance International
Product of Mexico, Brazil, Uruguay
USDA ORGANIC
Organic honey cannot be used for industrial purposes. See our website for details.



Thanks to

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 - ▶ Kathy Keatley Garvey for many of the photos
-
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