BEES, POLLINATORS, & HONEY, OH MY!

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WHAT IS A POLLINATOR?

honey bee = poster child

WHY ARE THEY A BIG DEAL?

TYPES of POLLINATORS

BEE

WASP

FLY

BEETLE

BUTTERFLY

MOTH

HUMMINGBIRD

#ONpollinator

FACTS

- Almost 90% of all flowering plants rely on animal pollinators for fertilization, and about 200,000 species of animals act as pollinators. Of those, 1,000 are hummingbirds, bats, and small mammals such as mice. The rest are insects like beetles, bees, ants, wasps, butterflies and moths. See http://www.wildaboutgardening.org/en/attracting/section1/

Alaska's primary pollinators are native Bumble Bees, Sweat Bees, Andrenid Bees, Hawk Moths, and wasps. Imported European Honey Bees also play an important role in pollinating Alaska crops.

Native Bumble Bees

There are 49 species of Bumble Bees in the United States and approximately 23 species *(Bombus sp)* found in Alaska.

Bumble Bees are excellent pollinators, especially of Alaska berry species. While Bumble Bees are generalist foragers, visiting a diversity of flowers, a few groups of flowers, such as lupines, are particularly important to them.

Bumble Bees practice what is called "buzz pollination" where they grab onto the anthers of certain flowers and buzz their flight muscles to release the pollen. This behavior is especially important in pollinating some of Alaska's native berry species.

Bumble Bees are social insects and build their nests in the ground, often in abandoned mouse burrows, empty bird nests, and even in other insulating materials such as discarded mattresses, manure piles, and the walls of old buildings. The mated queen over-winters in the soil while the rest of the colony dies at the onset of cold weather. In the early spring, she establishes a new nest and rears the first worker brood. These workers are small sterile females that enlarge the nest, forage, and tend to the next generation of workers which, due to conditions within the nest such as increased temperature, cell size, and food availability, are also larger. In late summer, males, called drones, and fertile females, next year's queens, are produced. The sole function of the drones is to fertilize the queens before dying in the fall.

Sweat Bee

Sweat Bee is the common name of the family of bees in the family Halictidae, and are named so for their attraction to the salts in human perspiration. There are 13 different species of them in Alaska. Most Sweat Bees are small to medium-sized, 3 to 10 mm (0.12 to 0.40 in) long. They are generally black or metallic colored, and some are brilliant green or brassy yellow.

Sweat Bees are among the most common bees wherever bees are found, except in Australia where they are relatively uncommon. There are about 1,000 species in the United States, Canada, and Central America.

All species nest in the ground. Halictids have a range of nesting habits, from dispersed solitary nests to densely situated ones with individual bees sharing common entrance ways to primitive social arrangements. Halictid Bees are common insects and good general pollinators.

Non-Native Pollinators

European Honey Bee

More than nine million European Honey Bees are imported into Alaska each year for honey production. These bees play a significant role in pollinating Alaska's crops and wild lands. Most European Honey Bees cannot survive through Alaska's cold winters. Some industrious Alaska beekeepers are attempting to over-winter bees by providing a climate controlled hive areas and food sources through the winter.

About NRCS

The USDA's Natural Resources Conservation Service provides financial and technical assistance to support conservation efforts on private land, including conservation of pollinators and other wildlife. Contact an NRCS office about opportunities to improve your pollinator habitat.

FOOD SECURITY

Per the USDA,

Almost 80% of the 1,400 crop plants grown around the world that produce all of our food and plant-based industrial products require pollination by animals.

COLORFUL DINNER

WITH POLLINATORS

WITHOUT POLLINATORS

M. Rei Scampavia 2015

Bumblebees increase tomato and pepper yields, especially in greenhouses. Squash bees pollinate zucchini, squash, and cucumbers, and avocados rely on honey bees. Mustard greens are grown from seed produced by insect pollination as well.


This meal was brought to you by the following pollinators:
Beetles pollinate pomegranates.
Ants pollinate mangoes.
Butterflies pollinate some nuts (for muffins!).
Moths pollinate bananas.
Flies pollinate the cola nut.
Bees pollinate coffee, grapes, watermelon, melons, berries, kiwi, fruit for jelly, peaches for yogurt, cotton for the tablecloth!
**70% of the food you eat brought to you by pollinators.

What is pollination?

CELEBRATE NATIVE POLLINATORS!

These critical creatures make enormous contributions to thriving food crops and plants in our everyday world.

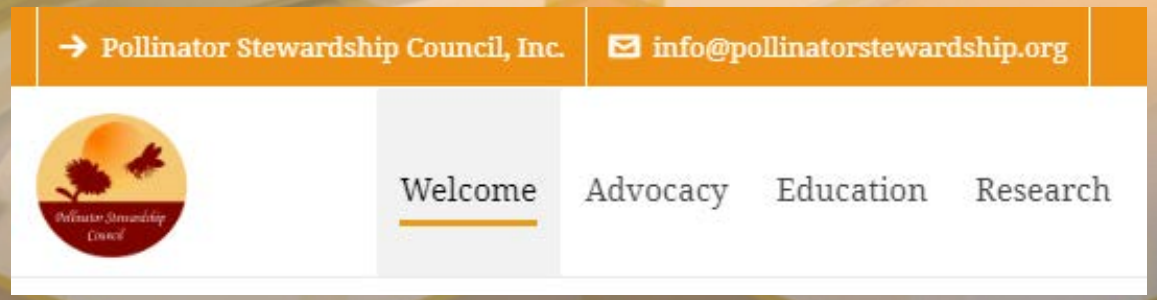
Gardening with native plants encourages healthy biodiversity and solutions to feeding an already hungry planet. Take action and participate in a Native Plant and Pollinator Program near you.

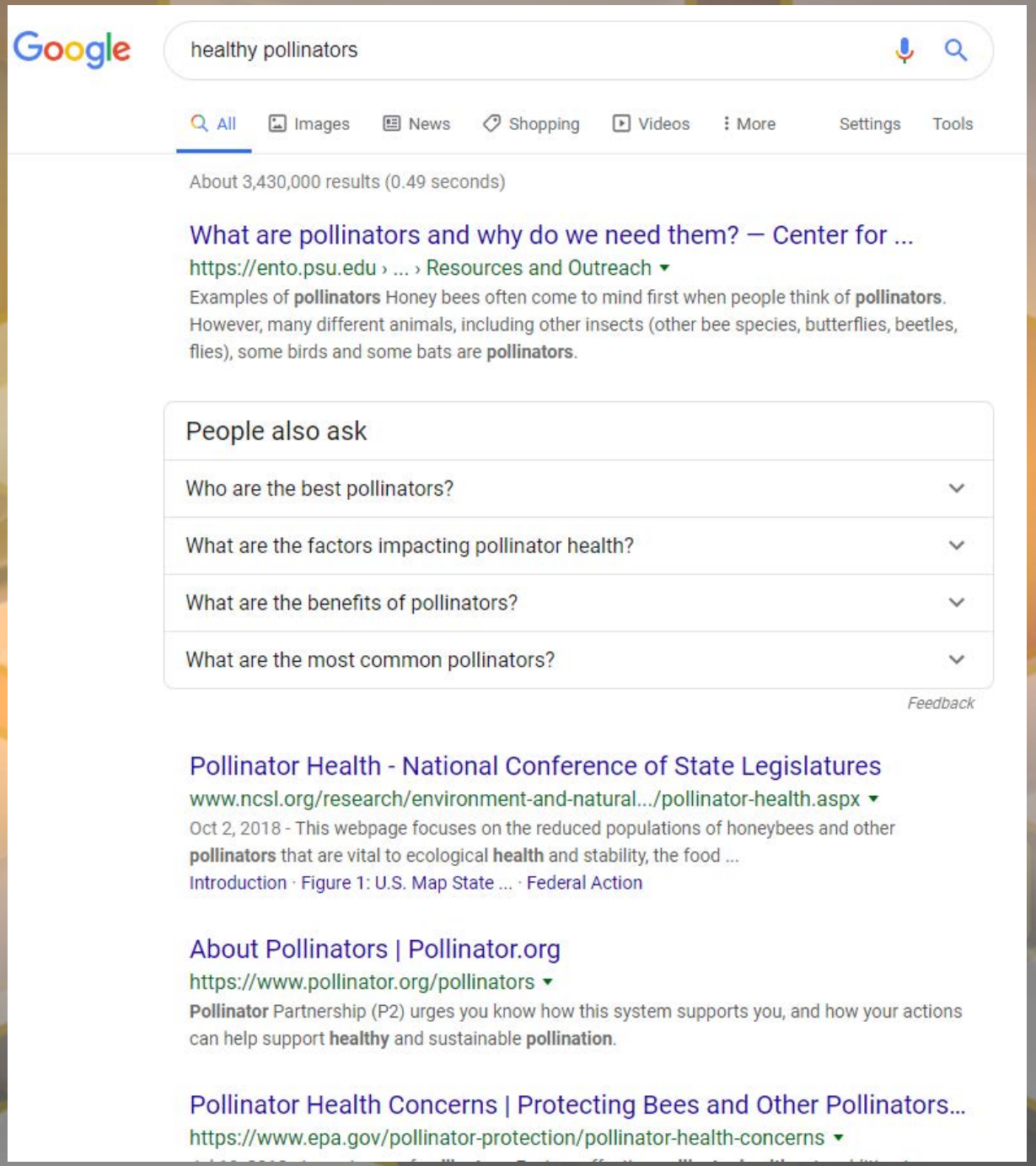
For More Information Visit:
fs.fed.us/wildflowers/
Join us at:
WildlifeForever.org

USDA

HOW CAN I HELP?

Education!





HOW CAN I HELP?

Plant a Pollinator Garden

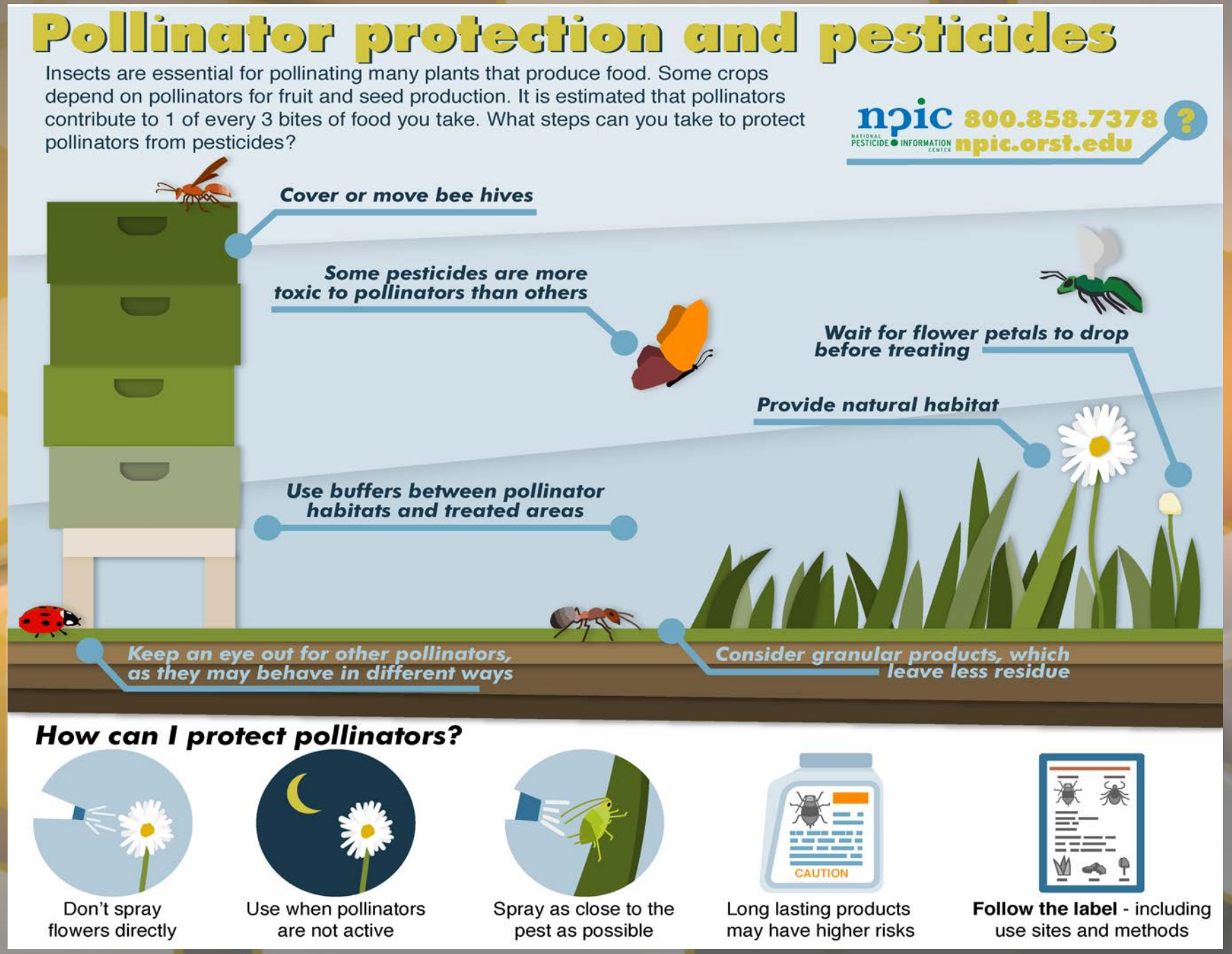
HOW CAN I HELP?

Reduce area of lawn/grass.

Grass lawns offer little food or shelter for most wildlife, including pollinators. You can replace grass with a wild meadow or prairie plants. Plants native to your area are adapted to your soil type, climate, precipitation, and local pollinators! You can get a list of plants native to your area at:
http://www.nwf.org/backyardwildlifehabitat/nativeplants.cfm

HOW CAN I HELP?

Reduce chemical use and misuse.

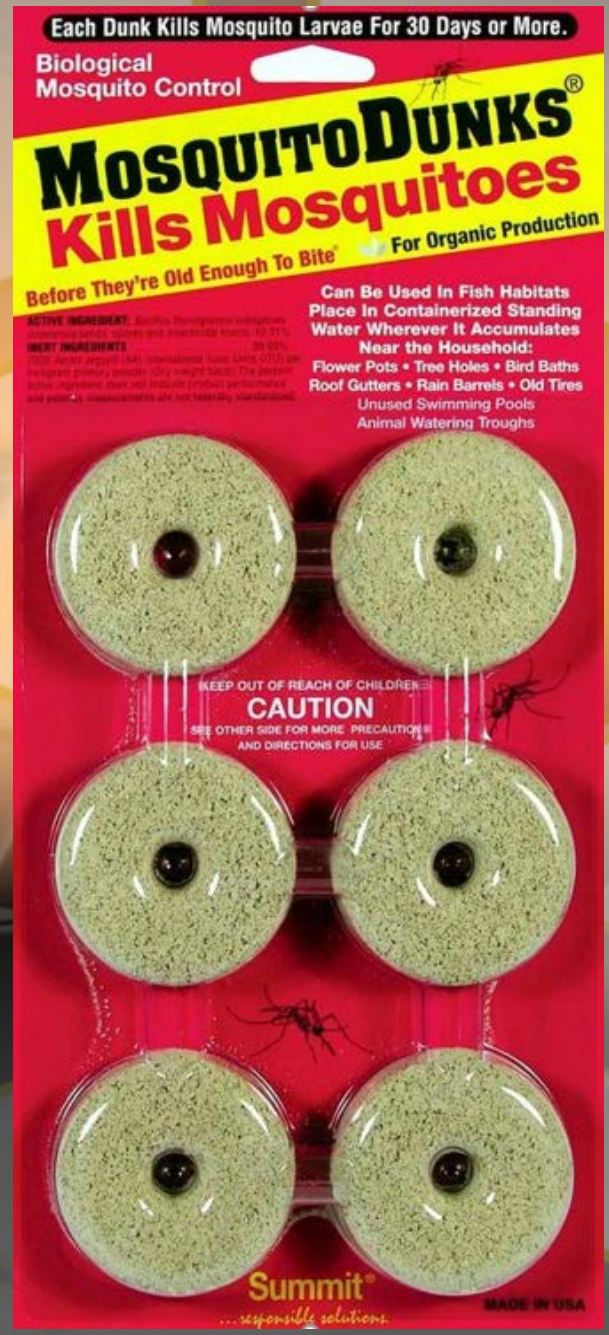


HOW CAN I HELP?

Responsible Mosquito Control

- Get rid of standing water!
  - Did you know that a bottle cap filled with water holds enough water for mosquitoes to breed?

  TIP – TOSS – TURN!
- Anti Mosquito plants (also pro-pollinator)
- BT dunks for ponds, rain barrels, watering troughs, etc… (*Bt-israelensis* (Bt-i), a highly specific biological pesticide)
- Be wary of commercial mosquito companies.



HONEY BEES

- WINTER:
  - Active during winter
  - Whole community (vs bumbles)
  - FEED FEED FEED
  - Manage moisture
  - Treat for mites
  - Reduce the hive size

BEE FACTS

- Honey bees must gather nectar from two million flowers to make one pound of honey.
- One bee has to fly about 90,000 miles – three times around the globe – to make one pound of honey.
- The average bee will make only 1/12th of a teaspoon of honey in its lifetime.
- A honey bee visits 50 to 100 flowers during a collection trip.
- Honey bees communicate with one another by dancing and through pheromones.
- A colony of bees consists of 20,000-60,000 honey bees and one queen. Worker honey bees are female, live for about 6 weeks and do all the work.
- The queen bee can live up to 5 years and is the only bee that lays eggs. She is the busiest in the summer months, when the hive needs to be at its maximum strength, and lays up to 2500 eggs per day.
- Larger than the worker bees, the male honey bees (also called drones), have no stinger and do no work. All they do is mate. And Eat.

- Honey has always been highly regarded as a medicine. It is thought to help with everything from sore throats and digestive disorders to skin problems and hay fever.
- Honey has antiseptic properties and was historically used as a dressing for wounds and a first aid treatment for burns and cuts.
- The natural fruit sugars in honey – fructose and glucose – are quickly digested by the body. This is why sportsmen and athletes use honey to give them a natural energy boost.
- The honey bee is the only insect that produces food eaten by man.
- Honey lasts an incredibly long time. An explorer who found a 2000 year old jar of honey in an Egyptian tomb said it tasted delicious!
- The bees' buzz is the sound made by their wings which beat 11,400 times per minute.
- Honey is incredibly healthy and includes enzymes, vitamins, minerals. It's the only food that contains "pinocembrin", an antioxidant associated with improved brain functioning.

NORTH CAROLINA HONEY

Honey is honey, right? WRONG

WILDFLOWER!

MONO FLORALS!

RAW HONEY?

COMB HONEY?

CREAMED HONEY?

FAKE HONEY!?!?!?!


Pure honey
Fake honey
REAL HONEY
vs.
FAKE HONEY
Contains Bee Pollen
Real honey in its pure unaltered state with all the nutrients intact.
No Sugars Added
Honey can pour in one continuous stream right down to the last drop in the bottle.
Crystal Layers
Over time, soft honey crystal layers will form naturally.
Healthy
Great-tasting Honey Produced by bees fed on real nectar and pollen.
Contains NO Bee Pollen
Watered down, heated and ultra filtered, fake honey has long shelf life, but no nutrition.
Cane, Beet or Corn Sugars Added
Will break flow of fake honey when poured out of the bottle
Solid Mass
Over time, processed fake honey solidifies, forming a hard, solid mass.
Does Not Crystalize
Heated to 180, fake honey will never crystallize, but destroys nutrients.
Not Healthy
Bland-tasting Honey Produced by bees fed on sugar or pollen substitutes.


Real OR Fake
HONEY
REAL HONEY
Made by Bees
Honey Aroma
Contains Wax, Pollen and Propolis
No Sugar Added
Naturally Crystallizes
Healthy
FAKE HONEY
Factory Made
No Smell or Sour Smell
Contains NO Wax, Pollen or Propolis
Contains Cane, Beet or Corn Sugars
Does Not Crystallizes
Not Healthy
HOW TO SPOT...

Crystallized honey?

Crystallization is the natural process of glucose sugar molecules aligning into orderly arrangements known as crystals and is not an indicator of spoilage, impurity, age or quality.

GLASS containers - place the jar of honey in hot (not boiling) water and stir the honey until the crystals dissolve. Leave the jar open. Allow it and the water to cool. Do not leave the honey on a heat source. Repeat as needed.

Cook with honey!

- Substitute honey for up to half of the sugar called for in the recipe. Honey has higher sweetening power than sugar. (use less)
- Use equal amounts of honey for sugar up to one cup. Over one cup, replace each cup of sugar with 2/3 to 3/4 cup over honey depending upon the sweetness desired.
- Lower the baking temperature 25 degrees and watch your time carefully since products with honey brown faster.
- In recipes using more than one cup honey for sugar, it may be necessary to reduce liquids by 1/4 cup per cup of honey.

Allergies?

- The scientific community resolutely says NO – or Probably Not at best.
- Their reasoning for this conclusion is based on several facts:
- Scientifically-controlled clinical testing has not produced empirical evidence to support the claim that honey can lessen allergy symptoms.
  Most seasonal allergens are caused by pollen not collected by bees, such as that from grasses or conifers.
  It is almost impossible to know what the bees are collecting. Honey may contain the target pollen, minuscule amounts, or none at all. Therefore determining dosage is impractical.
  Sources: The Mayo Clinic, WebMD, and the American College of Allergy, Asthma and Immunology
- What to try anyway? Buy LOCAL, unadulterated honey. Mass produced honey is often treated in ways that remove pollen. Buy honey "by the season": Spring honey may contain pollen collected between November and June. Start using this in early winter. Fall Honey may contain pollen collected between June and November. Start using in mid summer.
  Speak personally to a beekeeper to find when the honey was produced.
  Start using the honey about 6 weeks in advance of when symptoms begin.

Do not feed to infants under 1 year of age!

- Infant botulism is a rare but serious gastrointestinal disease caused by exposure to spores of *Clostridium botulinum* (*C. botulinum*). Typically, botulism occurs in children less than six months of age. After that time, protective mechanisms and immune and digestive systems are more developed. According to the CDC, there are about 95 cases of infant botulism a year in the US.

Questions?


FRAZZ
BY JEF MALLETT
WHO'S IN THE SPACE-SUIT?
JAN, THIS IS DON TURNER. HE HELPED ME MOVE THAT SWARM AWAY FROM THE SWINGSET.
BZZZZ
7-24
www.jeffmallett.net
YOU'D THINK AN EXPERIENCED BEEKEEPER WOULDN'T KEEP HIS PHONE IN HIS PANTS.
CERTAINLY NOT SET ON "BUZZ."
MALLETT
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