

Spring



Dandelion
(*Taraxacum officinale*)
Pollen and nectar



Mustards
(*Brassica* spp.)
Pollen and nectar



Sage (*Salvia* spp.)
Pollen and nectar



Spring Beauty
(*Claytonia virginica*) Pollen



Pussy willow
(*Salix discolor*)
Pollen and nectar



Chick weed
(*Stellaria media*)
Pollen



Strawberry
(*Fragaria* spp.)
Wild and garden variety
Nectar



Henbit
(*Lamium amplexicaule*)
Pollen



Service berry
(*Melanchier canadensis*)
Pollen



Red maple
(*Acer rubrum* & spp.)
Pollen



Elm trees
(*Ulmus* spp.)
Pollen and propolis



Poplar (Cottonwood)
(*Populus* spp.)
Pollen and propolis



Four seasons of Bee Forage

Bees forage over two miles for:

Pollen: is found in many plants, weeds, and trees. Pollen, a protein, is the key feature of colony nutrition. Pollen is eaten by newly emerged workers for about 10 days and supplies the protein for royal jelly.

Nectar: a sweet secretion of flowers of various plants. It is a carbohydrate that is dehydrated by hive bees into honey with an 18% water content.

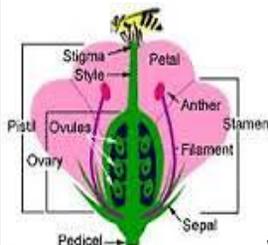
Propolis: **bee glue** -- is a sticky resin with antibiotic, antifungal, antibacterial, antiviral and antimicrobial properties. Bees gather propolis from buds of pine, Norway spruce, alder, willow, horse-chestnut, birch, plum, ash, oak and poplar. Bees use propolis to coat the wood in their hive, seal cracks and encase foreign objects—even mice.

Water: Bees need water. If you don't provide a shallow water source, the bees will drink out of your neighbors dog dish or watering tank.

Bees don't FANCY forsythia, lilacs, roses, marigolds, mums, carnations and peonies.

Winter

Not much is blooming in the winter - maybe a dandelion. A good time to study pollination, bee tongue length and baking something with HONEY.



WSU Asotin County Master Gardeners Davison/Cole

Summer

Vegetables/food crops 1/3 of our food

Fruit blossoms

Apricot, apple, cherry, pear, peach
Nectar



Berries

Blueberries, raspberries, elderberries, black berries
Nectar



Black locust

(*Robinia pseudoacacia*)
Nectar



Hawthorn

(*Crataegus douglasii*) Pollen



Thistle

Canada, Bull, Musk, Scotch, Globe, Yellow star
Nectar



Linden tree

Aka "Bee Tree"
(*Tilia americana*) Nectar



Clovers

White, Dutch, crimson, alsike, alfalfa, sainfoin.
Pollen



Fall

Weeds:

Purple Loosestrife, dogbane, burdock, others
Nectar



Buckwheat

(*Fagopyrum esculentum*)
Nectar



Aster (*Amellus ellus*)

Nectar



Herbs essential oils:

Thai basil, mint, thyme, melissa, lavender, coriander-Help rid Varroa
Nectar/pollen



Goldenrod

(*Solidago*) Nectar



Bees and blooms: How it works!

About March 15, temperature rises in the hive as the Queen lays eggs—Workers begin foraging for 1) Water 2) pollen 3) nectar 4) propolis

Question: When and how do worker bees gather and transport pollen and nectar?

Answer:

First a scout bee finds a source for foraging and communicates its location through dance.

Between 22-45 days old, worker bees forage for nectar (carbohydrate) and pollen (protein sources.)



The worker's body has a positive electrical charge which attracts pollen. The pollen literally jumps toward her body. She then combs the pollen into her pollen basket on her hind legs and flies back to the hive where pollen is collected and stored in hexagonal cells.

It is mixed with nectar where it becomes "bee bread." Workers can carry about 1/3 of their body weight in pollen. Pollen is vital to development of young bees.

Question: How does a worker bee gather and transport nectar?

Answer:

Bees collect nectar using their proboscis, a tube formed by mouth parts. A bee can collect her own body weight, suck it into her honey stomach and fly back to the hive where she regurgitates it into the mouth of a house bee. House bees blow bubbles to concentrate the sugars. It is then stored in the hexagonal comb cells.



One-third of food crops need pollination: tomato, cucurbits, fruits, nuts, grapes.

Question: How does a worker bee gather propolis?

Answer:

First: Propolis is like pitch. In fact, a good source is conifer trees. It is used as a cement and to retard deterioration and to sanitize the hive. Bees put it on the interior of the outer wall of the hive.

Next: Bees use their mandibles to bite the glue-like resin of resin-producing plants. Then, the bee chews it like taffy and scrapes it into her pollen basket with her front legs.



When she gets to the hive, she solicits another bee to assist her in removing and placing the propolis where it is needed.

Question: How do bees collect and use water?

Answer:

Bees do not store water. It is needed to dilute honey, feed larvae, to cool the hive if temperatures get too high and to increase humidity.

Bees prefer water that has some odor over pure water. Water foragers do not go long distances to collect water. They may fill their honey stomach quickly at any source—your dog dish or your swimming pool. The workers may remain in the hive as a water storage vessel, if the water is not needed immediately.



References for the information include:

Caron, Dewey M., *Honey Bee Biology*, 2013;
Sanford, Malcolm T. & Bonney, Richard E. *Keeping Honey Bees* 2010;
Johansen, Carl A. & Mayer, Daniel F. *Pollinator Protection* 2014.

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