

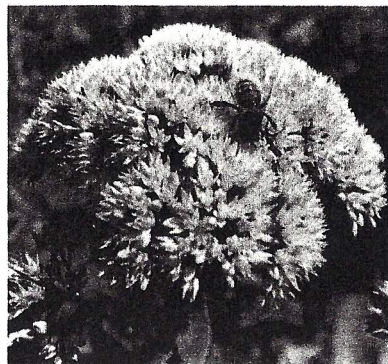
Honey is known as nature's original sweetener. Did you know that it contains vitamins, minerals and amino acids? Vitamins include vitamin B6, thiamin, niacin,

riboflavin and pantothenic acid. Essential minerals, such as calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium and zinc are also found in honey. Honey is a natural mixture of the simple sugars glucose and fructose providing a quick source of energy. Honey also contains several compounds that work as antioxidants, one of which is unique to honey called pinocembrin.

The body of a honey bee is hairy and when she flies into a flower blossom, the hair on her body and legs attracts pollen grains. As the honey bee moves from flower to flower, the grains are transferred to another flower and pollination occurs. This permits the plants and trees to produce seeds and fruit. The same pollination task occurs when honey bees visit grains to collect pollen to feed their young.

Honey bees are the only insect that can be managed for pollination throughout the year.

They do not hibernate or become dormant during the winter and keep their colony strength at high levels surviving on their stored food. In the spring when they begin building up the colony population to peak levels, their need for food (nectar and pollen) becomes greater and they are ready to search (forage) for it among the trees and plants. With this in mind, colonies can be moved to the field or crop requiring pollination.



Bees have a habit known as 'flower fidelity', that is, when working on blossoms for either nectar or pollen, bees seldom visit more than one kind of flower at a time. This means that if a bee has

started to gather nectar from peach blossoms, she will continue to gather nectar from peach blossoms until the time of foraging has ended. This is especially important as it ensures cross-pollination only within the kind of fruit/plant being visited. Approximately 80% of all pollination required for set of fruit and seed is performed by honey bees.

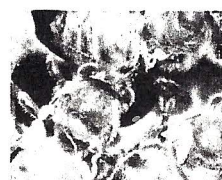
The honey bee population has decreased in the past 10 years because of the damage from two separate and distinct parasitic mites. No longer can you find honey bees flying around in the woods and living in trees. Many beekeepers also lost their colonies. With fewer and fewer honey bees available, fruit and vegetable growers and home gardeners are turning to beekeepers for assistance with pollination.

Tracheal mites can only be seen under a microscope and damage and destroy the bees by clogging their trachea (breathing tubes) limiting the ability of the honey bee to fly.

Varroa mites look like a little reddish-brown tick that rides around on the bee's body and then lays its eggs on bee larvae in its cell. The young mites then feed on them causing deformed wings or death to the larvae. Medications have been developed that allow beekeepers to keep their bees alive now, but no one is out there taking care of the honey bees in the woods.



Tracheal mite



Varroa mite



Have you ever looked at a cucumber that has a gnarled, mis-shaped end? How about seedy flat-sided strawberries? Or an apple that is flat on one side? That indicates lack of pollination! - You NEED honey bees if you want to produce high yields and well-developed, nicely shaped fruits and vegetable.

The estimated value of pollination to Tennessee agriculture is \$100 million per year. The Tennessee Beekeepers Association maintains a listing of those beekeepers who will 'rent' their honey bee colonies to you for pollination of your crops. Contact TBA at:

<http://www.tnbeekeepers.org>

