It can only pollinate bramble plants such as raspberries and blackberries in a greenhouse environment. Bramble plants have thorns and produce edible fruit.

The drawback is that it only works on self-pollinating plants. Once it reaches the plant it "jostles the plant" causing the pollen to shake free and hopefully fall on a blossom. The BrambleBee will not work on tree crops, like almonds or non-self-pollinating plants. Based on the limited use of robots, we need to figure out how to protect bees, not replace them.

Drone Pollination

Work has also taken place with utilizing flying drones to pollinate plants. The latest versions cost around $100/unit. Still in its infancy, they must be manually steered. The use of drones will require self-steering and the need to communicate with each other to avoid collisions. Large swarms of drones will be necessary. Drone pollination is still 20 to 30 years away.

Walmart is hedging its bets. Walmart has filed six patents to develop and use pollination drones, aka, robot bees. The drones would be capable of pollinating flowers and crops the same way a bee would. Cameras and sensors on the drone would identify pollen in one flower before moving to the next flower. They want to ensure foods such as apples, pumpkins and almonds remain on shelves in the event of a bee extinction.

Dairy Products Would Begin Disappearing

Dairy cows eat about one hundred pounds of food per day and require a complex diet. They are a major consumer of bee pollinated plants. One of their main food sources is alfalfa, which requires bees for pollination. Without dairy cattle, milk, butter, yogurt, ice cream and cheese will just disappear. Worldwide there are 74 million acres planted in alfalfa. North America produces forty-one percent of worldwide alfalfa on 29 million acres. Although the majority of beef comes from beef cattle, seventeen percent of all beef comes from dairy cows. Humans consume about 75 pounds of beef every year. Sheep and goats also eat pollinated plants.

Clover is another crop important to dairy cattle. Brought to North America as early as 1664 as a forage crop, it is extensively cultivated as fodder plants. Fodder crops are a main source of nutrients for livestock and provides increased production. Livestock fodder crops are also a food source for honey bees and the foliage and seeds are consumed by wildlife. Clover is an important cover crop because it cuts fertilizer costs and enhances soil health, which reduces the need for herbicides and pesticides. Clover also prevents soil erosion, conserves soil moisture and protects water quality.

Cotton will Become an Expensive Luxury

Although cotton crops do not completely rely on bees for pollination, it has been shown that when bees are present during the flowering period it increases the strength, length, quality and quantity of the cotton fiber lint.

Cotton was introduced to Florida in 1556. Today, the USA is the biggest cotton exporter in the world with revenues of $25 billion a year and 200,000 employees. Cotton provides approximately 95% of the world's natural textile fiber demand. Seventy-five percent of the world's clothing products contain at least some amount of cotton. Cotton is one of the least expensive textile fibers in the world. Without the bees, cotton crops would be less profitable and would probably lead to only man-made materials being available.

Besides the clothing industry, the loss of cotton would affect the production of our paper money (75% cotton) and toilet paper.

Several cooking oils will also no longer be available: canola, coconut, almond, sesame and cottonseed oil are all pollinated by bees. The word Canola is a contraction of "Canadian" and "ola (oil)." Brand name shortening Crisco will not be available. It's name is a modification of the phrase "crystallized cottonseed oil".

What Will We Eat in a Post-bee World?

Anemophily, is the process of pollination transported by air currents from one individual plant to another. Some plants require pollination by an enormous numbers of pollen grains. About 12% of the world's flowering plants are wind-pollinated.

Without bees, our diet would consist of grains, such as wheat, rice, corn, rye, barley and oats. Several nuts like walnuts, pecans and pistachios would supplement your diet. Your vegetables would be potatoes, tomatoes, onions and carrots since they don't rely heavily on bees for pollination.

Although beef would be expensive, some meat products will be available, including pork, poultry and fish.

Svalbard seed vault

Svalbard Global Seed Vault

There is some hope that most of the non-pollinator plants will not go extinct because of the world's largest secure seed storage. The facility is part of the international system for conserving plant genetic diversity guided by the United Nations for food security and sustainable agriculture. Located in the Norwegian island of Spitsbergen, in the remote Arctic Svalbard archipelago, it contains 1,081,026 seed samples. Most of these seeds are anemophily, very few are dependent upon pollinators.

The Cost of Food will Skyrocket

Bees are the lifeblood of the food chain. A single bee colony can pollinate 300 million flowers each day. Within three months, worldwide crop yields would plummet. This would cause the Destruction Domino Scenario wherein bees pollinate plants, which then get consumed by animals and these animals are consumed by humans. Herbivores, would be affected first because they depend solely on plant species.

The loss of the plants eaten by animals would cause the cost of feed to increase, resulting in higher food prices. In fact, this has already happened in Scotland. During the Winter of 2012, Scotland lost almost one third of their honey bee colonies, which, in turn caused food prices to soar.

Over the last six years, the bee industry spent $2 billion to replace 10 million hives. The almond industry makes around $500 million a year. Higher fees cost almond growers an extra $83 million a year. They pass those costs on as higher prices.

Malnutrition – Our Diet Would Suffer

By the end of the first year, without honey bees, we would have a very bland diet, less diverse and less nutritious. Malnutrition will be a big worldwide issue. We need different nutritional foods and vitamins to stay healthy and complete our full range of physical and mental activities. Health complications would arise due to malnutrition and medical costs would soar with them.

Loss of Important Vitamins and Minerals

Bee-pollinated crops provide the majority of lipids, which are molecules that contain hydrocarbons and make up the building blocks of the structure and function of living cells. These crops also provide a large portion of the minerals calcium, fluoride, iron and vitamin A, C and E. Without vitamin E, our immune system will become weaker and the lack of vitamin C could cause a scurvy epidemic. Foods that are pollinated by bees also contain nutrients that lower the risk of cancer and heart disease. Without them, we become sickly, tired and weak. The loss of pollinators would place a great number of people into a vitamin A deficiency that is important for many bodily functions, including proper vision, a strong immune system, reproduction and good skin health. Pollination loss would also create a folate deficiency. Folate is a B vitamin that your body needs to work properly and is especially important for healthy pregnancies.

Medication

Many medicines humans use, both conventional and alternative, are derived from flowering plants. The willow and aspen trees used to make aspirin are pollinated by bees. Opium poppies used to produce morphine are also pollinated by bees. The manufacturing of many important drugs and medical treatments could be affected by a sudden loss of our bee population, leading to shortages and in some cases, complete unavailability.

Many vegetables will be substituted increasingly by staple crops like rice, corn and potatoes, eventually resulting in an imbalanced diet.

There Might be a Worldwide Economic Crash

According to Bayer, a German multinational pharmaceutical and biotechnology company that specializes in agriculture seeds, "every season, pollination from honey bees, native bees and flies deliver billions of dollars (U.S.) in economic value. Between $235 and $577 billion (U.S.) worth of annual global food production relies on their contribution." With such an impact on the economy, it begs the question: if these critical insects were public companies, how might they stack up in the global marketplace?

Without bees the world is going to take an enormous economic hit. There are going to be entire industries like coffee, cotton and food production that may no longer exist.

To understand the overall impact you need to look at the 'Crop Value Chain' (see image below). This chain of crop activities include: land preparation, planting, cultivation, harvest, storage, marketing process, market and consumer. Each step involves countless people, which has an impact on our economy.

Alfalfa is a $10 billion per year industry. Coffee is a $81 billion per year industry in the world. The value of crops pollinated by honey bees is valued at $54.75 billion dollars. In the U.S., there are 2.05 million farms, of which 97% are family owned. Many of these farms will no longer exist.

Worldwide Famine

Without bees, most plants can't grow or reproduce. Large-scale desertification, which is the process by which natural or human causes reduce the biological productivity of drylands (arid and semiarid lands), could occur. Huge landslides could wipe out entire villages, and severe drought could starve the survivors. Freshwater would start to disappear, since trees are needed for water retention, and there would be a lot less trees. Studies have shown the devastating impact the continued loss of pollinators like honey bees could have on millions of people in the developing world. Seventy percent of the world's poorest people live in rural areas and depend on agriculture for their livelihood.

Bees are among the hardest working creatures on the planet providing an important ecosystem service of ensuring pollination and the reproduction of many cultivated and wild plants, crucial for food production, human livelihoods and biodiversity.

A world without bees could struggle to sustain the global human population of 7.7 billion people.

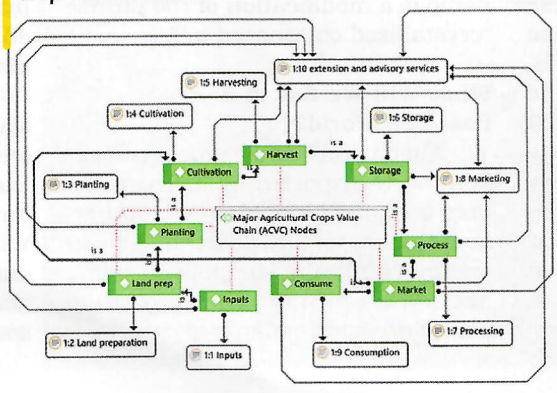
Famine would be very likely in developing countries. Humankind will survive because food crops like wheat, rice, soy and corn grow without insect help. It would however take time to switch over to these crops. Without bees it would be hard to maintain our current population, which is still growing.

Food availability will drop drastically and costs will increase, which would result in less access to food for many people.

If all bees died, it may not be a total extinction event for humans, but it would be a disaster for our planet.

It's almost impossible to overstate how important the role bees play in the global food supply and natural balance of the planet. It's important not just for us that bees survive, but for every living thing on the planet. BC

Crop value chain



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