

Honey bee colony collapse disorder essays examples

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Honey Bee Collapse Disorder

Honey bees play a significant role in human consumption as well as in ecology. They are primarily known for producing honey which is widely used in our foods. They also serve a major role in ecology as pollinators. Their ability to produce honey is one of primary reasons why we humans culture them. There are a number of ways to extract honey from the hive. The first step before any extraction is to remove the bees from their combs. After that, the most easiest and fastest would be to use an extractor. It achieves this by using centripetal force wherein inside a barrel, the honey is removed by spinning the frames where the combs are built. Another method is to squeeze the honey out by crushing the comb and lastly is by uncapping the comb and letting it drip. After extraction, the honey is then filtered to make sure there are no remaining contaminants.

Bees play an important role in economics. Other than their obvious benefit of producing honey, in the United States, they pollinate 80% of the flowers crops. Their commercial value would be estimated around 15-20 billion dollars yearly. However, a phenomenon in 2006 came to the attention of beekeepers. In the winter of 2006-2007 a steep population decline by 31.8% were reported by beekeepers. Population declines are a common occurrence in honey bee colonies and these are expected especially during the winter season. However, the severity and magnitude of this event during late 2006 was unprecedented. It is accompanied by a peculiar characteristic that bees are failing to return to their colonies. This came to be called by entomologists' as colony collapse disorder (CCD). While it gained attention in various communities and particularly to mainstream media only recently,

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these events are not new. There have been reports dating from 1996 to as far back as 1880 with similar scenarios but it cannot be verified whether the causes are similar to what is occurring at the present.

Over the past few years, scientists have been trying to find out the underlying cause for this occurrence. The four main areas that researchers are exploring are pathogens, parasites, management stressors and lastly environmental stressors. In pathogens, a study conducted in 2002 by Israeli scientists discovered a virus found in abandoned colonies and occasionally in healthy ones as well. This virus came to be known as the Israeli acute paralysis virus (IAPV) which causes shuddering, paralysis, and ultimately death in bees but it was also found that individuals infected with the virus were carried by healthy workers as far away possible from the colony leading scientists to believe that this is not the underlying cause. Other unknown viruses as well may be a factor. *Varroa destructor* a parasite in bees may also be a primary cause whether they themselves deprive the bees of nutrition or as the carriers of deadly pathogens for the bees. Although the research behind it was consistent with regards to the population decline, it only served as a consistent predictive marker during the winter season. Stress is may also be a factor to CCD. Particularly, beekeepers may be overcrowding apiaries as well as the stress of migrating them to different areas. Neonicotinoid pesticides used in flowers may also be a culprit where in theory they will paralyze the bees while collecting nectar- this is not certain however since only low concentrations of the chemical are found in dead bees. Including factors such as malnutrition and less recovery time, this may lead to poor health and make them more susceptible to diseases.

With many researches involved, scientists are now led to believe that instead of a single underlying cause, the occurrence CCD may be attributed to a synergy between these factors mentioned earlier. This conclusion however only complicates things. Since there is no single underlying cause, scientists will have to find that balance between the suspected culprits and devise a solution accordingly that addresses all the issues. Domesticated bees seem to be the most susceptible to colony collapse disorder.

Several solutions are being looked into by involved parties in the industry. One is to replace the honey bees as the primary pollinator with different species unaffected by CCD such as the *Osmia lignaria* or the blue orchard bee. Another is to attract wild species by diversifying the flowers in farms since diversity will lead to increased resistance to disease and other environmental stressors making it the answer to the pollination problem. New ways are being made to kill the Varroa mites and even beekeepers are even resorting to gamma radiation to sterilize old frames before reusing it. Also, certain countries have opted to ban neonicotinoid pesticides. The owners are also formulating their special diets to bolster honey bee health. Lastly, scientists are using RNA-interference wherein they prevent the virus from reproducing and effectively immunize bees to viruses since the physiological difference to their immune system would not make vaccines effective.

While there is no definite solution being found yet, the attention it receives from the media positively impacts the progress in looking for the “cure”. The increased awareness allows not only the researchers, beekeepers, industrialists to be kept well informed and updated but the general public as

well. The concern for this disorder is not restricted only to scientists and people involved in the industry but to all of humanity. Honey bees aside from producing that highly treasured sweet viscous fluid, they play an important role in ecology. If we lose the primary pollinators for our farms, a decrease in supply of the affected crops would ultimately lead to increase prices in groceries and markets. This negatively impacts us consumers.

As an individual and a consumer, we should be obliged to help. Supporting our local beekeepers is one of the achievable options. If you have gardens, minimal or zero use of pesticides may help preserve wild habitats. Lastly, if you have time, starting your own colony of honey bees may also help buffer the population loss currently occurring.

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