
Honey Bee Decline - Losing the Grip of Future

Keerthi Vasan Murthy^{1*}, M. Thirumurugan¹, P. Supraja¹

¹B.Sc. (Hons) Horticulture, SRM College of Agricultural Sciences, SRMIST, Chengalpattu, Tamil Nadu, India.

Corresponding author's e-mail: kv3674@srmist.edu.in

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ABSTRACT

This study provides a brief note on the key elements that causes lowering of honey bee population in the world. Rapid development of cities has caused deforestation, lesser farming and more pollution which directly affects the honey bee communities. The ground reality is that people are not aware of the uses and benefits the bees provide, they are an excellent source of nutrition to all every animals in wild and also in the cities. Planting extra flowering plants will boost the insurgence of honey bee movement in that region which will lead to increased bee population.

INTRODUCTION

As research proves, honey bees are the primary pollinators in agricultural crops because they carry out 80% of the pollination in flowering plants. Bees act as efficient pollinators and have beneficial uses like the production of royal jelly, bee wax, propolis, and bee venom with various medicinal, cosmetics, and food values. Recently a massive reduction in the population of honey bees has taken place due to multiple issues in this modern world.

Former FAO director-general Jose Graziano da Silva said, “The absence of bees and other pollinators would wipe out coffee, almonds, tomatoes and cocoa to name just a few crops that rely on pollination. Countries must shift to more pollinator-friendly and sustainable food policies and systems”.

URBANIZATION

Due to rapid development in cities, towns and villages, nature is distorted in many ways. Construction of the building, roads etc. This leads to habitat loss and the prevention of bee movement causes a decrease in the bee population. Increase in the number of industries, and companies create soil, air pollution, and waste materials are dumped into the ground, creating severe soil infertility. So the flowering plants and other crops cannot grow in those place. This consequences reduces bees' richness in that area, which leads to habitat loss. Removing the bees from their natural habitats diminishes the native bee breed populations.

CHANGE IN CLIMATE

Rapid changes in climate can affect the bee population and lead to outbursts of various bees' diseases and pests.

Climate change factors are listed below,

1. High temperature
2. Frost
3. Heavy rainfall

These factors can disrupt the pollinators' movement and prevents mating that seizes the population level.

PESTICIDES

Pesticides are chemicals that are sprayed on flowering plants and other crops to reduce pest attacks. Over dosage of pesticides (fungicides, insecticides and herbicides) disrupts the mode of action of bees collecting pollen and nectar. Spraying pesticides have very harmful effects on bees when they are not used in proper concentration and knowledge. This causes the pesticide residue on plants, which can also lower the diversity of bees and plants.

Some harmful effects of pesticides on bees are:

- Bees lack memory
- Bees get lost without returning to the hive
- Bees die suddenly

“Indiscriminate use of pesticides can finally open a pathway to the destruction of bee species.”

PATHOGENS AND PEST

One of the cause for honey bee population decline is due to the pathogen and pest. The major reason for colony destruction is mainly due to the **parasitic mite (*Varroa destructor*)** that was introduced in the year of 1970's which has become a **pan global pest**. The key role of parasitic mites is to transmit the Deformed Wing Virus (DWV), leading to infection and colony loss. The prime pest of honey bees are **wax moth (*Galleria mellonella*)**. It can rapidly demolish the stored bee wax combs by chewing through the combs.

POOR NUTRITION

The important food sources of honey bees are Pollen and nectar, which are enriched with nutrients that are necessary for the development and multiplication of honey bees.

The development of queen, worker and drones depends on their feeding pattern. Inefficient Horticultural / Agricultural crops, over dosage of fertilizer application decreases production of pollen and nectar by the plants. 30 per cent of loss of bees are due to poor diet.

IMPROPER APIARY MANAGEMENT

The major causes for improper apiary management are lack of knowledge and poor maintenance of beehives. Beginners have no idea how and where to set up apiary. The reason has led to exponential decrease in beekeepers and beekeeping. Improper apiary management base for pest and disease and improper hive nutrition supply.

Irregular cleaning and replacing of older frames maximizes the risk of pathogen attack. Beekeepers should place the hives, where there's adequate floral diversity so that commercial honey production is more.

COMPETITION

Honey bees are essential to the agricultural sector; they compete for pollen, nectar and nesting habitat. So introduction of foreign species in agriculture becomes a threat to native species. For example, African honey bees are known as "Killer bees," a hybrid variety. Finally the strongest ones will survive the race for food and shelter.

COLONY COLLAPSE DISORDER: (CCD)

The disappearance of worker bee in which queen and brood young remains is called colony collapse disorder. It occurs due to search of food (Pollen and nectar), otherwise, the criteria refers to stranger colonies robbing the honey of dead colonies or it can also be caused by an infestation of pest and diseases in the hive. This disorder causes insufficient number of bees to maintain brood.

CONCLUSION

One of the biggest dangers faced by bees today is unsafe habitat that lacks food supply to them. Providing an ecofriendly environment with ample amount of flower and fruit crops will definitely increase the population of bees in that area. A simple way to bring awareness on the importance of bees is to inspire the future generation on bees that provide tasty honey and are blessed with super abilities.

“Saving bees Matters”

REFERENCE

<https://extension.usu.edu/pests/factsheets/factors-contributing-to-bee-decline-PR.pdf>