



Honey Bees – Importance to Agriculture

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Honey bees in the USA are not a native species. They were introduced to the continent. When colonies of honey bees are found living in the wilds of the USA, they are better referred to as feral; not wild colonies. Many crops in the USA are also not native plant species. They have evolved in regions where bees were present before being introduced to the USA. It is only natural that the plants require large populations of honey bees to pollinate them. These plants and bees have become essential parts of the USA's agricultural and biodiversity systems.

Pollination

The value of pollination by honey bees in the USA is estimated to be more than 14 billion dollars annually. Many crops that are important to human life in the country depend on honey bees for pollination. Production of plants is increased by pollination only. Other practices in agriculture such as the application of pesticides and fertilizers are aimed at preventing losses and preservation of quality. They do not have an effect of increasing yields, unlike pollination.

The life of honey bees drives them to be pollinators. They need nectar and pollen as their food. Nectar forms the part of honey bee diet that contains sugar. Pollen is rich in protein content and used by bees as the main solid food. To collect these necessary food materials, honey bees have to visit the flowers of plants.

Beehive Products

Honey bees in agriculture are important for another reason too – the products they give us. Beekeeping is the practice of maintaining honey bee colonies for their economic significance. From beehives, we harvest honey, beeswax and other products. The sale of colonies to beekeepers starting new hives is also an avenue to make money from honey bees. Many beekeepers have large operations in which they keep many honey bee colonies. They maximize profits in such beekeeping operations and can carry out beekeeping as the sole agricultural activity, or practice it alongside other agricultural production activities.

In recent years, more beehive products have been discovered. They include royal jelly, propolis and live bees such as the queen bee. Innovations and adoption of various technologies in beekeeping have made it a profitable undertaking for many people. Today, beekeepers are to be found everywhere in the land including in urban areas.

Importance of Bees for Sustaining Life on Earth

The importance of bees extends to general sustenance of life on earth. Flowering plants benefit from the activities of bees in no small way. Pollination of plants is the most visible role of bees sustaining life on Earth. In addition to pollination, species such as honey bees give us products such as honey and beeswax. However, the total value of honey and beeswax harvested from managed honey bee colonies pales in comparison to the work of bees as pollinators.

The Importance of Pollination

Pollinators have strong influence in ecologies. They impact relationships, ecological stability, floral diversity and specialization. In terrestrial ecosystems, bees have very important roles as pollinators. They have ensured the survival of many species of trees in savannah woodlands, tropical forests, temperate deciduous forests and in mangrove forests. Many species of animals and plants would die out if bees were not present in their ecosystems. Bees maintain biodiversity in many ecosystems including those in cultivated and non-cultivated areas.

Pollination is important to more than 250,000 plant species. They depend on transfer of pollen from the anthers of flowers to the stigma for reproduction to occur. Various agents are required for this transfer including wind, water, birds and insects. Bees are a major insect involved in pollination. This is because they feed on nectar and pollen. They enter flowers to collect these materials and end up facilitating transfer of pollen from the anthers to the stigma of flowers.

Why Bees Make Great Pollinators

Plants have various mechanisms that ensure genetic diversity. Some plants allow self fertilization to occur while others do not. It is with the flowers that do not allow self fertilization that bees are a lot of help. With such plants, pollen from the same flower cannot fertilize the plant. The pollen must come from the flower of another plant of the same species for fertilization to be successful. Bees are good at cross pollinating plants of the same species. They tend to move through flowers of the same species when foraging. This behavior is unlike that of other insects and birds that often move haphazardly from one flower, to the next flower of a plant that is not of the same species.

Another aspect about bees that makes them great pollinators is their hairiness. Bees are very hairy in comparison to other insects. Hairs on bees have a branched end structure. It is highly effective in catching pollen and retaining it close to the body of the bee. Flowers that depend on bees for pollination have evolved to have mechanisms and structures that ensure bees brush up against the anthers as it goes for the nectar in the flower.

How Bees Impact an Ecosystem

Many factors influence the success of ecosystems. They include temperatures, soil, water and sunshine. Animal life also plays a role in maintaining healthy ecosystems. They can move around and serve as vehicles for transfer of pollen and seeds. In transfer of pollen, animals are pollinators. When they are involved in transferring seeds of plants from one location to another, they are seed dispersal agents. Animal activity is not limited to the large animals in ecosystems. It includes all non-plant organisms, including insects. An ecosystem without insect life dies sooner or later.

A complete ecosystem includes microbial, animal, plant and insect life. It is supported by energy sources including the sun and soil. Food chains and pyramids in individual ecosystems transfer energy from one organism to the other, in a gradual process that ends with apex predators and scavengers. In ecosystems, bees facilitate the existence of many plant and animal species. They also serve as food to some predatory species that prey on bees.

Bees are a highly visible insect in ecosystems. They are very much involved in pollination. While their size makes involvement in seed dispersal difficult, they have a vital role in pollination. It impacts the presence and continued thriving of plant species in the ecosystem. Without bees to pollinate them, many plants in the ecosystem would die off. It affects all other species in the ecosystem that might be reliant of the plant for shelter or food. In the wild, one plant species can be useful to many insect and animal species.

Issues Facing Honey Bees

Beekeepers across the USA are experiencing unprecedented drops and losses in number of managed honey bee colonies. These losses have been attributed to climate change and use of pesticides. Feral honey bee colonies have not been spared either. Invasive pests are also taking their toll on honey bee colonies. Such pests include mites and hive beetles. They have applied so much pressure on honey bees that they are causing significant colony losses. Diseases too are affecting honey bees. The American chalkbrood and foulbrood are the most significant diseases impacting honey bees. Beekeepers across the country are putting in place various measures to fight the challenges encountered in maintaining healthy honey bee colonies. Sometimes they are successful, other times they are not.

Conservation beekeeping sometimes requires the beekeeper to not harvest beehive products. It is however advisable to remove some products such as old wax comb. Other hive maintenance practices must also be carried out to ensure best health of the honey bee colony.

Conclusion

Plant production in agriculture accounts for a very large percentage of food consumed in the world. In the USA alone, plants and their derivatives form more than 2/3 of food content. Bees are a major player in the presence of plant life on the planet. They are under pressure from various factors including climate change and use of pesticides. It is important to understand and protect the **roles of honey bees in agriculture**. The public, authorities, beekeepers and conservation organizations are all doing a lot to ensure that honey bees are present in our ecosystems. Now that you know the **importance of honey bees in agriculture**, it would be great of you to become an active advocate for honey bee conservation.

References

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