

Chapter 2

STRESS FACTORS IN HONEY BEES AND REFLECTIONS ON COLONY LIFE

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Introduction

Beekeeping is an ancient tradition in the culture of Anatolian people since ancient times. Besides its old history, the development in beekeeping has accelerated in recent centuries due to advances in science and technology. In today's technical sense, beekeeping, which is an agricultural production, can be defined as the "art of using and managing honey bees" for certain purposes. As in other branches of production, the goal in beekeeping is to provide the highest income with the least expense (1). Technical beekeeping and success are two basic elements. The level of these two basic elements determines the level of income from beekeeping. It is impossible to talk about success and income in a beekeeping that is not based on knowledge and experience and without technical applications. While an ordinary and old-style beekeeping can be done by everyone in an amateur way, a technically strong and successful beekeeping can only be done by people with knowledge and experience in this regard.

Honey bees; In addition to producing and collecting highly valuable products such as honey, beeswax, royal jelly, bee venom, pollen and propolis in terms of human health and nutrition, they are also vital in natural balance and agricultural production with pollination services provided in natural and cultivated plants. The most important benefits obtained from honey bees are the increased amount and quality of pollination in crop production all over the world. The potential in converting the investment to profit in a short time and need a little amount of capital for start-up make beekeeping attractive. Today, beekeeping is accepted as one of the most important agricultural activities. On the other hand, Turkey's rich flora and various climate zones are very important contribution to the development of local beekeeping. The contribution of beekeeping to the country's economy has been determined as 26.140 € per year. Honey bees are important for both the economy and the sustainability of vegetative biodiversity. Ninty two percent of plants are pollinated by honey bees. Honey production from sage, eucalyptus,

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Colony Collapse Syndrome (CCD)

Colony collapse syndrome, which occurs especially with the effect of stress factor, is an important threat causing the destruction of bee colonies. The stress seen in a single bee spreads rapidly throughout the colony, causing the death of worker bees, causing colony collapse. The most prominent feature of the colonial collapse syndrome is the disappearance of the adult bee community in the hive. The bees that leave the larvae and pupa in the hive, do not return the number of adult bees in the hive is gradually decreasing. However, those bee behavior will realize that this is an extraordinary event. Therefore, such a large and sudden loss of honey bee makes it difficult to examine the colony collapse syndrome. In addition, there is no indication that the hive has disease. In these colonies, the colony cannot be fed adequately, and although there are healthy queen bees in the hive, it disappears because the colony is weakened in falls.

Conclusion

Despite the many techniques and precautions taken to obtain high yields from honey bees, increases in colony losses and low yields have forced beekeepers and scientists to focus on every effective factor. Honey bees living in their natural processes try to develop their colonies by collecting nectar and pollen with the defense mechanisms they have developed against diseases and pests in their well-insulated nests that they have chosen in line with their instincts. The colony that has problems at any stage in the natural process cannot grow and finally disappear. The level of environmental stress factors and their adaptation to the conditions directly affect the life span of the colony. Genetic structure that cannot adapt is eliminated. If bee breeders correctly identify the stress elements of bees and make arrangements with appropriate and permanent methods related to them, the yield losses and possible economic losses can be prevented in beekeeping.

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