



AWARE



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BEE

Introduction

Within the scope of the Erasmus+ project of this year we worked on the mortality of bees and the decline of insects. The countries: Germany, the Netherlands, Belgium, Luxembourg, France and the Czech Republic have a cooperation in order to investigate the decline of bees and other insects and find appropriate solutions. This week we built our own beehive and insect hotels. One of our most impressive activities was talking to a professor of the university of applied sciences in Mönchengladbach about insects as an alternative food source to meat. In this folder we are going to talk about the reasons for the decline, the problems, which result from this and possible solutions.



**Don't be haters,
save the
pollinators!**

Decline of insects

Insects are very essential for ecosystems all over the world. There are approximately 33.000 species in Germany alone. They maintain for example the biodiversity of plants by pollination and they take part in mineralising of dead organic material. Out of the 33.000 thousand species in Germany, more than 90% are flying insects, bees included. There are 3 kinds of honey bees; worker bees, drones (male bees) and a queen. The queen can lay up to 2500 eggs a day and 2000 of them die a day and the nurse bees, which belong to the workers bees, take care of the eggs. All of the bees communicate with each other by dancing, for example, to show everyone the way to a food source that one of the bees found. Interesting to know is that bees have two stomachs, five eyes and that only the female bees sting. The humming sound they make is due to the wings that beat 11.400 times a minute.



Reasons

There are several reasons for the dying of insects. Most of them are caused by us, humans, and some go back to natural processes. A few of these reasons are listed below:

1. The use of pesticides in agriculture

Have you ever wondered why so-called "bio" products are so expensive? Besides marketing strategies there is one more very important reason why these ecologically produced foods cost so much: They compete with "regular" products. The reasons why regular products are cheaper than ecological products is the use of pesticides, like herbicides, fungicides and insecticides which help to increase the yield. Insecticides are the ones causing the problem. These insecticides are used to repel certain types of insects that eat the crops or damage them in other ways. But these toxins also affect other insects leading to collateral damages. The pesticides affect the insect's autoimmune-system and later kill them. The toxins used in the insecticides are nowadays far more effective than those, which farmers used in the past. These new potent broadband insecticides have a massive impact on insects and contribute to their decline.

2. The over-breeding of domesticated bees

Bees as we know them now aren't natural. They were specifically designed by humans to maximise honey production and plant pollination a long time ago. This was done by crossbreeding certain races of honey bees with others to get the best characteristics of both. This has been an established process but recently the bees are every time less adaptable to the challenges of their ecological niche. In the last decades, there hasn't been 'new blood' in the bee family. This minimises variation. Therefore the bees can fall prey to diseases caused by bacteria or fungi.

Ecological problems

In nature there's an ecological balance between plants and animals, predators and victims. If one component increases or decreases drastically, there will be huge consequences. It basically works like a massive chain reaction: For example, in China there were a lot of sparrows which robbed people's grain. The sparrows were then killed by the Chinese people on behalf of the government. This resulted in a plague of insects because sparrows eat the insects. As a consequence farmers employed insecticides to fight the insects but this of course also killed bees. The more biodiversity the more stability of an ecosystem.

Perspectives

Are we doomed to extinction?

Not necessarily ...

- **Don't use pesticides or other chemicals to treat your lawn or garden!**
- **Become a small scale beekeeper!**
- **Stop supporting the industrialised farming by taking the following into account:**
- **Be(e) aware of what you are buying.**
- **Go for ecological food and think sustainably!**
- **Don't waste food and just eat as much as you need!**
- **Your buying decisions should not depend on the appearance of a farming product, but on smell and taste!**