

What is good for bees?

The forest and homegardens which are diverse with many flowers provide food and nesting resources for bees.

We found more bees:

1. in gardens close to the forest **close to forest**

! do not cut down or burn more natural forest



2. in gardens with many flowers

! plant many flowering plants in your homegardens



3. in gardens surrounded by many other gardens

! keep many beautiful homegardens



The forest and the gardens do provide good possibilities for food and nesting sites for bees. Much better than a plain vegetable field or rice field. Bees can fly from your gardens or from the forest into your vegetable or coffee plantation and pollinate your crop!

Recommendations



1. Conserve forest and natural habitat for bees
2. Leave some areas aside for bees
3. Keep the homegardens beautiful with many flowers

Pesticides:

3. Do not apply pesticides to blooming plants. This is poisonous for bees and they can die.
4. Spray at night or early morning, when bees are still sleeping.
5. Apply pesticides only when necessary! Do not spray just in case it could be something, this is dangerous and a waste of money! Check if necessary - this also helps to save money!

This will also be good for your health and your family!



I am a biologist and did my PhD at the University of Göttingen, Germany. I worked in homegardens in Napu for my project and was supervised by Prof. Teja Tscharntke and Prof. Alexandra-Maria Klein.

I want to thank all farmers in Napu for letting me work in their gardens. And I want to thank my assistants and friends for helping me! Without you this study would not have been possible.



Tadulako University



Funding: DAAD and DFG



Summary of a PhD project in Napu, Indonesia (english translation)

Bees and pollination in homegardens

Iris Motzke

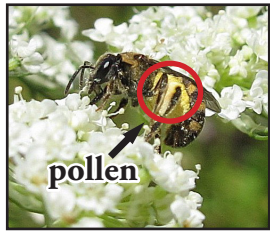


There are many different bees, worldwide more than 25000 species, which help pollinate wild plants and crops.

Did you know that there are many different bees in your gardens?



Why do we need bees?



Bees are insects, which collect pollen and nectar as their food. You can see them flying around with little packages of pollen on their body.



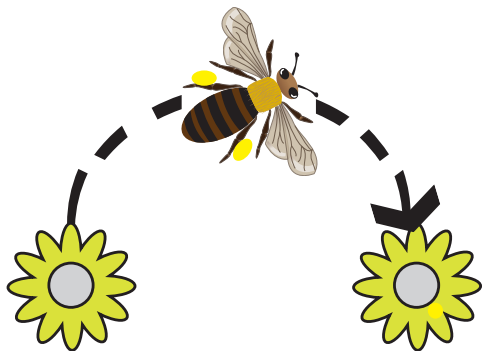
Most bees do not sting (some bees do not even have a sting) if you do not disturb them.

Some bees make honey, but did you know that they do so much more for us humans?

They are important for wild plants and also for many of our crops.

Why? How do they do this?

For a plant to produce fruits- they need pollen to be placed from one flower onto another flower. The wind can do this for some plants, but many plants require the help of an animal to help them.

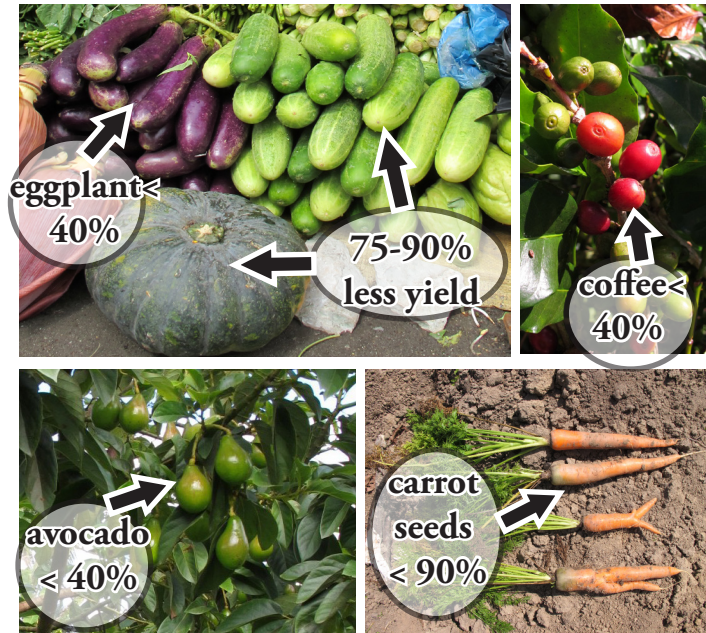


Bees fly from flower to flower to collect pollen and some of the pollen lands on the next flower. In this way the bee helps the flower to fertilize and produce fruits.

What happens if bees decline?

Without bees we would have no or much less of these fruits:

For example: cucumber would have 75-90% less yield without bees.



So we need bees if we do not want to pollinate the flowers on our own!!

Bees are declining in many parts of the world! But why are bees in danger?

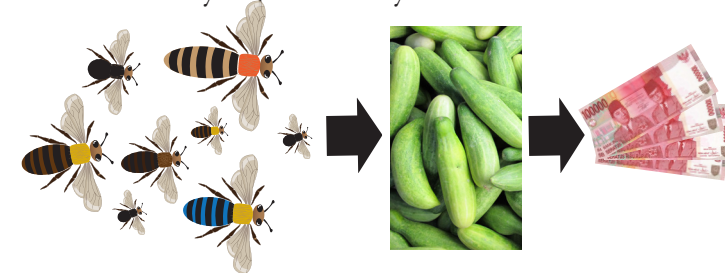
- **forests and other natural areas are destroyed for agricultural land** – bees have no nesting possibilities and no food sources.
- **increasing use of pesticides to control weeds and pest insects** – many pesticides are also poisons for bees!

Research in Napu valley

We wanted to know:

1. how important are bees for yield of vegetables
2. how important is forest, homegardens and flowers in homegardens for bees

We found 23 species of bees visiting cucumber flowers! Bees were very important for yield of cucumber:



the more bees --> the higher yield --> higher income!

BUT: We found no effect of insecticides on yield!

What is good for bees?



Bees depend on different food resources. Different plants provide different food for bees. Some pollen, some also nectar. And plants do not flower at the same time, so that bees need different plants to have food throughout the year.

Bees also need places where they can build their nest. Some bees need trees to nest, some wooden structure, some simply use a little hole in the ground



different nests of bees

