Beekeeping

BeeBe,my friend I'm the Beekeeper Can I take your honey? Live beefore dying...

Students, here we are, speaking about bees. "Again!" you will say.

Yes, but IN ENGLISH this time!

And so you will be able to say all you know about bees to more people! Because the entire world has to know how important those pollinators are.

This talk will be short and will leave you the possibility to develop your knowledge of bees.

That is what we hope.

We will first present you the insect, then his "guardian", his products, and say a few words on the critical situation of bees now facing extinction mainly because of chemical agents used in intensive farming.

Key words

hive: the bees' house to gather pollen and nectar

wax: what we use for making candles

brood: baby bees

frame: the wooden part that you can take off to collect honey

drone: male bee

hornet: an arthropod looking like a bee but which is not.

pollination

royal jelly, propolis, honeydew

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Be the Bee

Now, I'm going to start with a description of bees' morphology and of their social organization in the beehive.

First of all, it's important to know that there are more than 20,000 known species of wild bees in the world. But, beekeeping is concerned with the practical management of the social species of honey bees. The main species managed by beekeepers in Europe is the *Apis mellifera*, also called the Western honey bee, which live in large colonies of up to 100,000 individuals. So, we'll only talk about that species of bees.

As you all know, bees are essential for agriculture and for the preservation of biodiversity because they are the predominant and most economically important group of pollinators.

The majority of insects are solitary creatures but some, like honey bees, have evolved to be in communities. Bees have a lot of tasks to perform because their lives are governed according to the needs of the colony.

Bees are Insects and have a body made of three parts: head, thorax, and abdomen. The head houses a large share of the sensory organs (eyes, antennae, mouth parts comprised of the tongue and chewing parts). The thorax, houses the locomotory appendages (the legs and wings), and the muscles for powering them. The organs of digestion and reproduction are in the abdomen.

There are three types of individuals in a honey bee colony: female workers, female queens, and males often called drones which all have their importance.

Of the three bee types, workers are the most numerous and interesting. It is workers that care for the queen, feed the brood, clean and defend the nest, forage for food, recruit nestmates to food sources and make the kind of decisions popularly ascribed to the queen. For example it is workers who determine the types of resources needed by the colony and who decide if and when the colony reproduces.

To carry liquid loads of nectar or water, workers suck up liquids into their honey stomach: the first chamber of a three-chambered stomach, and regurgitate their loads back at the nest. On their hind legs they have a complicated structure called the pollen basket in which they carry pollen loads. (The most famous worker anatomical specialization is their persuasive sting assembly comprised of a venom gland and barbed stinger). Glands occur on other parts of the body for producing brood food, beeswax, and pheromones (external hormones that regulate the behavior of other bees).

In the beginning, any female egg has the potential to develop into a queen or a worker. The queens are developed from larvae selected by worker bees and specially fed with royal jelly in order to become sexually mature. There is usually only one queen in a hive which is the mother of all the bees of the colony.



Beekeeper

So we will see how a beekeeper takes care of its bees.

First, a beekeeper has to pay a lot attention to his bees throughout the year and not only for the honey harvesting because bees have a very delicate health. Moreover, all the beehives have to be in good conditions, and they mustn't be the same that the others to avoid the bees are lost. That's why many hives are colored or with signs of recognition.

At the beginning of the winter, the beekeeper has to check if all the beehives are ok: if the "queen" is always here and if there is no parasites, no diseases, not too much snow on the hive! ... And he could treat them or give them emergency food. To approach the bees without getting stung, the beekeeper wears special clothing and lulls with a smoker. They are less aggressive.

Then in the spring, bees begin gathering pollen and nectar in the flowers and reproduce themselves. The population increases a lot so the beekeeper adds some level in the beehive in order to make place for the births and for the honey. So a hive can have different height.

And then, the harvesting in summer: there is 1 or more harvestings per year but always at the end of the flowering. There are many steps:

When the beehive is full of honey thank to the bees, the beekeeper takes the levels of the hive full of honey to extract it from the hive then.

In each level, there are always 8 frames that are filled by the bees. One frame is composed in many holes (or operculum) that bees fill with honey and then they close these holes with wax. So the beekeeper has to remove this layer of wax in both sides with a hot knife. (the wax will be used to make candles)

The honey is extracted thanks to a machine: an extractor.

And it's filtered.

And then honey is stored in pots. Good tasting!



The various bee products

Thank you Cecile, that leads us to another point wich is the various bee products.

There is no doubt that honey is the most popular bee products, still bees are also capable of producing a lot of products, wich gives a lot of benefits to humans health. Thus, there is today a huge beekeeping business. However, these bee products are unknown.

That's why I'd like to give you an overview of these products, besides I'll give you more elements on the benefits that they could give. Such as, why and how bee products can help us to live a healthier and longer life.

Firstly, I'll pass on to Honey. Nectar is the precursor of it. I'm sure everybody here know that honey is mainly composed of sugars ,such as glucose fructose, and minerals which include potassium, sodium, magnesium, calcium, iron, copper, sulfur, zinc, and iodine. Furthermore, it includes a lot of vitamins which are also good and worth for the body. Therefore honey has the power to cure simple and severe disease, such as flew during the winter.

Honey is too use for the skin and for the hair. It can treat wounds, allergies, and burns. Today there are honey in cosmetics: body lotion body cream...

Next to honey is the bee pollen. It is actually pollen from flowers that is collected from bees as they enter the hive. Pollen granules stick to the bees' body, during they harvest the nectar inside the flowers. Just like the honey, it is also made up of tons of vitamins and minerals. Did you know that it is complete food? Indeed, all of the nutrients that humans need are in it. What I mean by this is it contains essential amino acids, which are worth for us.

Bee pollen also cure lots of illness, in add it is also great in improving the function of the vital organs. A large number of people are using bee pollen as their daily supplement.

Then, Royal jelly, which is secreted from the salivary glands of worker bees, serves as food for all young larvae and larvae that will develop into queen bees. Like bee pollen, it have therapeutic properties, due to vitamin, minerals, such as to have the power of bringing humans longer lifespan.

The next bee product is honeydew, miellat in French. It is a sweet substance excreted by aphids, also called plant lice. Honeydew is a clear, sticky. Bees drops of excess honeydew that the aphids excrete. Next they bring it back to the hive to be made into "flea honey."

Final bee worth mentioning is propolis. It is called bee glue. Propolis is a resinous substance bees use to construct their hives. In laboratory tests, it has exhibited a variety of interesting antimicrobial and antitumor properties That's why it is usually used to treat cancer.. However, it has little practical use due to the fact it can cause allergic reactions

Are the bees enslaved? Exploited? What are the consequences on the environment in the long term? How to get biological bees product without pesticides or harmful substance?

Aphids= plant lice= small insects, they feed on the fluids in plants and are plant pests because they damage trees, garden, or agricultural crops.



Bees' diseases and predators

Thank you Adèle, we now are able to define what exactly bees can do for us. Now, I would like raise a sadder subject: the bees' enemies.

First, let's replace the bee in the alimentary chain: they are eaten by birds.

Asian hornet

Our European bees have almost a new predator: Vespa Velutina Nigrithorax. This Asian hornet measures around 4 cm. The hornets can devastate a colony of honey bees: a single hornet can kill as many as 40 honey bees per minute thanks to its large mandibles which can quickly strike and decapitate a bee. It takes only a few of these hornets a few hours to exterminate the population of a 30,000-member hive, leaving a trail of severed insect heads and limbs. The European honey bees Apis mellifera have small stings which do little damage to hornets that are five times their size and twenty times their weight. This hornet enters in the hive to eat honey bees' larvae.

Varroa

A well-known bees' opportunist is Varroa destructor. This parasitic mite you can see on this picture, likes enter in the brood, and that's why the beekeeper has to treat the hives. In all the hives you can find Varroa destructor. But it doesn't really matter if they aren't many. In fact, they have to be behind a thousand. The adult lives hanged on a bee and sucks his lymph. They lay the eggs on the alveolus where are bees' larvae.

The consequences on the bees are that they become weak, and sometimes unable to fly because of distorted wings.

Nosema

Nosema is the most common disease and is to be found in seemingly healthy colonies. Nosema is caused by Nosema apis, a spore forming protozoa. The protozoa multiply in the ventriculus (30 - 50 million spores) and impair the digestion of pollen thereby shortening the life of the bee. The excreta containing spores is cleaned up by the bees and they become infected. Infected colonies fail to build up normally in the spring. Dead bees may be seen outside the hive after cleansing flights. Confirmation of Nosema is by microscopic examination (400x).

Especially Broods' diseases

Sacbrood disease prevents larvae from pupating (5 th moult) once they have been sealed in their cells. Larvae that have died from sacbrood become fluid-filled sacs stretched on their backs with their heads towards the top of their cells. Adult worker bees eventually uncap them. Diseased larvae turn from pearly white colour to pale yellow and the head curls up as the body dries to a thin, dark brown scale.

American Foul Brood is caused by the spore forming bacterium Paenibacillus larvae larvae. The spores contaminating the brood food develop into bacteria that penetrate the gut wall and multiply in the larval body tissues. The larvae usually die after the cell is sealed from 'blood poisoning'.

Diagnosis can be confirmed by the 'ropiness test': a matchstick is inserted into a suspect cell, twisted and withdrawn slowly. If AFB is present the larval remains will be drawn out as a brown mucus thread. AFB is a notifiable disease.

The enemy number one

So, as we see, the bees have many enemies, but we don't have spoken about the main one, that I think you could find out. Guess
Yes, he is the human.

The human and his monoculture. Single -cop farming.
The human and his eities: oncete ches

The human and his chemical products, which empoison the environment, killing all insects.

Nowadays, the role of beekeeper is not only to produce honey but also to be the importantes guardian of bees.

The Marmot and the Sow

the saucepan: la casserole

the sow: la truie the boar: le sanglier the tail: la queue

to shrug : hausser les épaules to squate down : s'accroupir

a hole= un terrier to groa= gémir hairy= frightening whistle= siffler

to carry along: charrier



Once upon a time, in a country far far away a marmot was deeply sleeping. She was dreaming about her territory. It was a nightmare in which there were no more flowers on his hill. Instead, a lot of iron and so noisy machines were passing through dried trees. They were clicking and groaning so strong that the marmot, in her hole, thought her head was above to explode.

The sleeping beauty... Sorry, I get the wrong story. So, the sleeping marmot, slowly woke up and realized that the noise was real. Frightened, she stood up, and carefully took a look outside.

That she saw made her laugh.

There was a pig running around, with a saucepan hung to his tail.

But then, the marmot stopped laughing: she understood it was so early, and it made her angry because she used to sleep until midday.

So, she blamed at the pig (which wasn't a big pig but a quite little pig because if it had been a big pig, the marmot would never blame at him, in case of he had been aggressive).

Ok, we said she blamed at the pig, listen:

- Hey you! PIG!
- I'm a Sow!
- Oh, so sorry... Right, SOW! CRAZY SOW should I say! It's so impolite to run around as you're doing, with a saucepan hang on your tail, so early in the morning! You are as noisy as two skeletons dancing on a tin roof! YOU WOKE ME UP YOU KNOW?

The sow stopped running.

- But it's nine...
- I use to wake up at midday.
- Ok...

She seemed above to leave, but turned back and, after looking at the marmot:

- Well, now you're up, could you help me to take down this damned saucepan?
- You didn't even apologize!

The marmot climbed up in the saucepan.

- I will continue here! You've got what you deserve!

The sow shrugged... Well, I don't know if sows can shrug, but she did what pigs do to shrug...

Here, the marmot jumped into the saucepan, and stand for the sow to walk.

So the sow started walking, carrying along the saucepan with the marmot inside, and trying not to disturb other animals.

The marmot didn't sleep, because a saucepan was not the most comfortable place to sleep.

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While this eccentric travel was happening, the marmot's angry gradually disappeared, and she was enjoying to see and hear many things...

- I have never heard this bird. His song is really nice.
- You never heard this bird because he only sings in the morning.

What is this strange and hairy Pig?

It's a wild boar, it's said that he's our cousin, although our specie is much lovelier. Hi cousin! Have a nice day!

All along the walk, the marmot saw things she had never seen before, she was so happy.

Suddenly, the sow stopped, petrified: a few meters further, men were loud speaking.

The marmot knew that men were dangerous, but this day, she wanted to take a closer look. She approached them, as discreetly as she could.

But they saw her.

So they began to speak very quietly, to squat down and whistle.

One of them reached out to give her something to eat. She smelt it, tasted it, liked it, and ate it. Then, she thought humans were so a strange specie, and decided to come back quickly. She jumped inside the saucepan, and the sow run away.

At the end of the day, the sow took the marmot back to her hole. The marmot took down the saucepan, thanked the sow, and said goodbye.

We can't finish this story within tell you what happened with the two men. They were a quad bike's amateur who wanted to convert the hill into a circuit, and a friend who wanted him to understand that there were protected species on this place.

And, seeing the marmot, the quad bike's amateur finally accepted to search another place where to create his circuit within damaging to much the nature.

And that's how, waking up earlier, the marmot didn't saw her life turning into her nightmare. As the early bird catches the worm... the early marmot catches the sow with a saucepan.

Les?



Mushrooms

Good morning everybody.

For my presentation, I choose to speak about mushrooms.

Most of people use to call mushroom the edible ones, those that have a stem (stipe), a cap (pileus), and gills (lamellae, sing. lamella) or pores on the underside of the cap.

Well, that doesn't really concern you, because you already know that mushrooms are much more.

Actually, mushroom is the fleshy, reproductive part of the body of a fungus.

"Mushroom" describes a variety of gilled fungi, with or without stems, and the term is used even more generally, to describe both the fleshy fruiting bodies of some <u>Ascomycota</u> and the woody or leathery fruiting bodies of some <u>Basidiomycota</u>, depending upon the context of the word.

Unlike plants, mushrooms cannot synthesize their own food from the sun's energy. They lack chlorophyll - the substance which permits plants to use sunlight to form sugars from the water and carbon dioxide in the air. Mushrooms therefore had to develop special methods of living: symbiosis, saprophytism and parasitism.

Most of the mushrooms growing on the forest floor are intimately linked to trees by symbiosis. This association, called mycorrhiza, occurs between the root ends of a tree and the vegetative system of a mushroom. Mycorrhiza benefits both organisms: there is an exchange of nutrients, one providing to other what it cannot synthesize or extract from the soil by itself. In general, the mushroom helps the tree extract minerals and water from the soil; in exchange, the tree supplies the mushroom with sugar compounds (carbohydrates).

Saprophytism is another important living method for mushrooms, especially for species which grow on lawns, on rotting wood or on excrement. Here the mushroom's role is one of decomposition. It feeds itself by digesting the organic matter and at the same time returns nutrients to the soil.

Finally, some mushrooms are parasites. There are several kinds of parasitism, ranging from the species which attacks a healthy host (tree, plant or insect) and lives on it without killing it, to the kind which attacks only unhealthy hosts, thereby hastening their death. The parasitic species are generally microscopic mushrooms.



Foes: poisonous ones

The Death Cap, Amanita phalloides. This species causes most of the fatal poisoning cases. First of all, there are breathing problems and dizziness. Then comes severe vomiting, diarrhoea and dehydration. After three days, you begin to feel better, but actually your liver is being destroyed. Death usually happens at least 6 days after consumption. The Death Cap is not uncommon under oak. Know this species if you are eating wild fungi!! The Destroying Angel, Amanita virosa. This causes the same problems as the Death Cap. There is one old record for it from Belvoir Park in the 1930's, but it was refound in 1999 in Drum Manor in Tyrone.

The Fly Agaric, Amanita muscaria. This is not as poisonous as the last two and has been used by shamans in Siberia in small doses to induce trances. People with heart problems however could be killed by it. It is very common in Northern Ireland and should be treated with caution.

Friends: Used for medicine

Research indicates mushrooms have potential antiviral, antimicrobial, anticancer, antihyperglycemic, cardioprotective, and anti-inflammatory, activities.

Foes: Used to excess

Psilocybin is a naturally occurring psychedelic compound produced by more than 200 species of mushrooms, collectively known as psilocybin mushrooms. The most potent are members of the genus *Psilocybe*, such as *P. azurescens*, *P. semilanceata*, and *P. cyanescens*, but psilocybin has also been isolated from about a dozen other genera. As a prodrug, psilocybin is quickly converted by the body to psilocin, which has mind-altering effects similar to those of LSD and mescaline. The effects generally include euphoria, visual and mental hallucinations, changes in perception, a distorted sense of time, and spiritual experiences, and can include possible adverse reactions such as nausea and panic attacks. Imagery found on prehistoric murals and rock paintings of modern-day Spain and Algeria suggest that human usage of psilocybin mushrooms dates back thousands of years. http://en.wikipedia.org/wiki/Psilocybin mushroom

Friends: Pest control

In agriculture, fungi may be useful if they actively compete for nutrients and space with pathogenic microorganisms such as bacteria or other fungi via the competitive exclusion principle, or if they are parasites of these pathogens. For example, certain species may be used to eliminate or suppress the growth of harmful plant pathogens, such as insects, mites, weeds, nematodes and other fungi that cause diseases of important crop plants. This has generated strong interest in practical applications that use these fungi in the biological control of these agricultural pests. Entomopathogenic fungi can be used as biological insecticides, as they actively kill insects. Examples that have been used as biological insecticides are Beauveria bassiana,



Metarhizium spp, Hirsutella spp, Paecilomyces (Isaria) spp, and Lecanicillium lecanii. [204][205] Endophytic fungi of grasses of the genus Neotyphodium, such as N. coenophialum, produce alkaloids that are toxic to a range of invertebrate and vertebrate herbivores. These alkaloids protect grass plants from herbivory, but several endophyte alkaloids can poison grazing animals, such as cattle and sheep. [206] Infecting cultivars of pasture or forage grasses with Neotyphodium endophytes is one approach being used in grass breeding programs; the fungal strains are selected for producing only alkaloids that increase resistance to herbivores such as insects, while being non-toxic to livestock.

Beauveria bassiana can be used as a biological <u>insecticide</u> to control a number of pests such as <u>termites</u>, <u>whiteflies</u>, and many other insects. Its use in the control of <u>malaria</u>-transmitting <u>mosquitos</u> is under investigation. As an insecticide, the spores are sprayed on affected crops as an emulsified suspension or wettable powder or applied to <u>mosquito nets</u> as a mosquito control agent.

The fungus rarely infects humans or other animals, so it is generally considered safe as an insecticide. However, at least one case of human infection by *B. bassiana* has been reported in a person with a suppressed immune system. [10] Additionally, like any powder, the spores may exacerbate breathing difficulties. Wagner and Lewis [11] reported the ability of *B. bassiana* to grow as an endophyte in corn.

Foes: pathogens

Many fungi are <u>parasites</u> on plants, animals (including humans), and other fungi. Serious pathogens of many cultivated plants causing extensive damage and losses to agriculture and forestry include the <u>rice blast</u> fungus <u>Magnaporthe oryzae</u>, ^[156] tree pathogens such as <u>Ophiostoma ulmi</u> and <u>Ophiostoma novo-ulmi</u> causing <u>Dutch elm disease</u>, ^[157] and <u>Cryphonectria parasitica</u> responsible for <u>chestnut blight</u>, ^[158] and plant pathogens in the genera <u>Fusarium</u>, <u>Ustilago</u>, <u>Alternaria</u>, and <u>Cochliobolus</u>. ^[138] Some <u>carnivorous fungi</u>, like <u>Paecilomyces lilacinus</u>, are <u>predators</u> of <u>nematodes</u>, which they capture using an array of specialized structures such as constricting rings or adhesive nets. ^[159]

Some fungi can cause serious diseases in humans, several of which may be fatal if untreated. These include aspergilloses, candidoses, coccidioidomycosis, cryptococcosis, histoplasmosis, mycetomas, and paracoccidioidomycosis. Furthermore, persons with immuno-deficiencies are particularly susceptible to disease by genera such as Aspergillus, Candida, Cryptoccocus, Histoplasma, and Pneumocystis. Other fungi can attack eyes, nails, hair, and especially skin, the so-called dermatophytic and keratinophilic fungi, and cause local infections such as ringworm and athlete's foot. Fungal spores are also a cause of allergies, and fungi from different taxonomic groups can evoke allergic reactions

Picture: The plant pathogen Aecidium magellanicum causes <u>calafate rust</u>, seen here on a <u>Berberis</u> shrub in Chile.

Strangers :

Certain fungi, in particular "white rot" fungi, can degrade insecticides, herbicides, pentachlorophenol, creosote, coal tars, and heavy fuels and turn them into carbon dioxide, water,

and basic elements. [208] Fungi have been shown to biomineralize uranium oxides, suggesting they may have application in the bioremediation of radioactively polluted sites.

Foxfire, also sometimes referred to as "fairy fire", is the <u>bioluminescence</u> created by some species of <u>fungi</u> present in decaying wood. The bluish green glow is attributed to <u>luciferase</u>, an <u>oxidizing agent</u>, which emits light as it reacts with <u>luciferin</u>. Although the purpose is unknown, it is widely believed that the light is meant to attract insects to spread its spores or, to act as a warning to hungry animals, similar to the bright colors exhibited by some poisonous or unpalatable species of animals. Although generally very dim, in some cases the illumination may be bright enough to read by.

http://www.academicjournals.org/BMBR/PDF/pdf2012/Sept/Adenipekun%20and%20Lawal.pdf



Some Common Tongue Twisters

Amidst the mists and coldest frosts, with barest wrists and stoutest boasts, he thrusts his fists against the posts, but still insists he sees the ghosts.

I brought the blazer braid I bought to bind the blazer blue. The braid I bought was not too bright to bind the blazer blue.

Betty Botter bought some butter. "But", she said, "the butter's bitter. If I put it in my batter, it will make my batter bitter. But a bit of better butter--THAT would make my batter better." So she bought a bit of butter, better than her bitter butter, and she put it in her batter, and the batter was not bitter. So 'twas better Betty Botter bought a bit of better butter!

Black dog danced on the barn floor barefoot.

The bootblack brought the boot back.

Cheryl's chilly cheap chips shop sells Cheryl's cheap chips.

A clipper ship shipped several clipped sheep. Were those clipped sheep the clipper ship's sheep, or just clipped sheep shipped on a clipper ship?

Ted threw Fred three free throws.

Threadbare Fred feeds on fried fresh fish, fish fried fesh, fresh fried fish, fresh fried, and fish fresh fried, does threadbare Fred.

The gum glue grew glum.

I often sit and think and fish and sit and fish and think and sit and fish and think and wish that I could get a cool drink!

I shot three shy thrushes. You shoot three shy thrushes.

Quick kiss! Quicker kiss! Quickest kiss!

Today is Tuesday. Stew day is Tuesday. Tuesday, stew day, is today.

This is a zither. Is this a zither?

Peter Piper picked a peck of pickled peppers, A peck of pickled peppers Peter Piper picked. If Peter Piper picked a peck of pickled peppers, How many pickled peppers did Peter Piper pick?

Tonque twisters

- 1- Peter Piper picked a peck of pickled peppers.

 A peck of pickled peppers Peter Piper picked.

 If Peter Piper picked a peck of pickled peppers,

 Where's the peck of pickled peppers Peter Piper picked?
- 2- A quick witted cricket critic.
- 3- I saw Susie sitting in a shoe shine shop.
 Where she sits she shines, and where she shines she sits.

4-How many boards
Could the Mongols hoard. If the Mongol hordes got bored?

- 5- How can a clam cram in a clean cream can?
- 6- Elizabeth's birthday is on the third Thursday of this month.
- 7- How many cookies could a good cook cook

 If a good cook could cook cookies?

 A good cook could cook as much cookies as a good cook who could cook cookies.
 - 8-Mr. Tongue Twister tried to train his tongue to twist and turn, and twit an twat, to learn the letter ""T"".

9-Yellow butter, purple jelly, red jam, black bread.

Spread it thick, say it quick!

Yellow butter, purple jelly, red jam, black bread.

Spread it thicker, say it quicker!

Yellow butter, purple jelly, red jam, black bread.

Don't eat with your mouth full!