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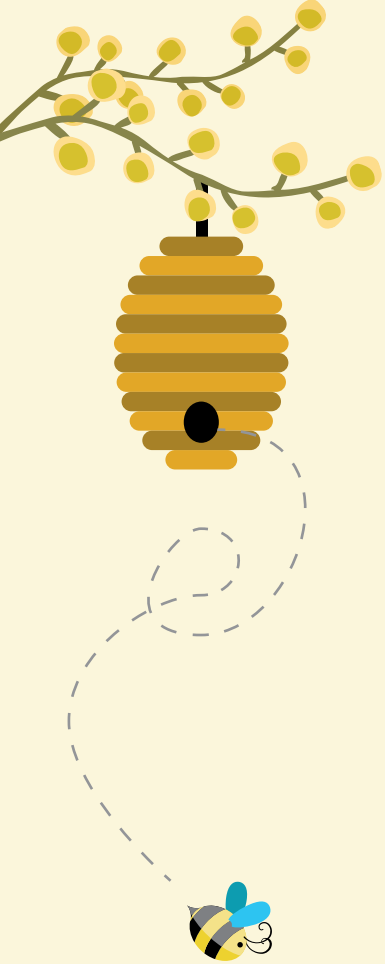
Pollinators and Pesticides

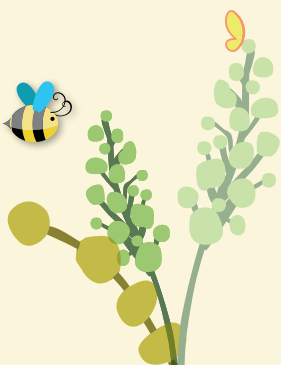
Keeping our bees safe



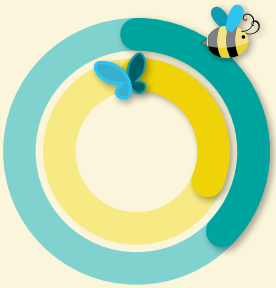
Pollination is the transfer of pollen between the male and female parts of flowers to enable fertilization and reproduction.

The majority of cultivated and wild plants depend on animal vectors, known as pollinators, to transfer pollen. However, other means of pollen transfer such as self-pollination or wind-pollination are also important.

Pollinators comprise a diverse group of animals dominated by insects, especially bees. More than 75% of the leading types of global good crops are visited by animal pollinators, such as bees. Pollinators visit flowers primarily to collect or feed on nectar and/or pollen.

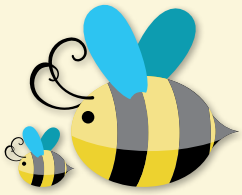


The importance of **pollination and wild pollinators**



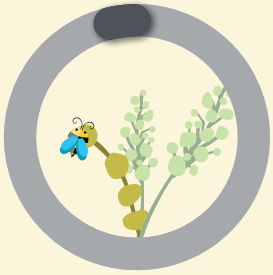
In Europe, 9% of bee and butterfly species are threatened and populations are declining for **37% of bees** and **31% of butterflies.**

The volume of production of **pollinator dependent crops has increased by 300%** over the last five decades, making livelihoods increasingly dependent on the provision of pollination.



Globally, nearly **90% of wild flowering plant species** depend on the transfer of pollen by animals.

It is estimated that **5–8% of current global crop production**, with an annual value of US$ 235–577 billion worldwide, is **directly attributable to pollination**.



Wild pollinators have declined in occurrence and diversity in North West Europe and North America. However, other sources note declines in other parts of the world.

Risks

Pesticide risks to pollinators

Intensive agriculture threatens pollinators, pollination and wild bee diversity. This is because agricultural pesticide use can have significant negative effects on species abundance. The risk to pollinators from pesticides arises through a combination of toxicity and the level of exposure. Pesticides, particularly insecticides, have been demonstrated to have a broad range of lethal effects on pollinators. A diverse community of pollinators provides more effective and stable crop pollination than any single species.

Wild bee diversity contributes to crop production even when honey bees are present in high abundance. The contribution of wild pollinators to crop production is undervalued.

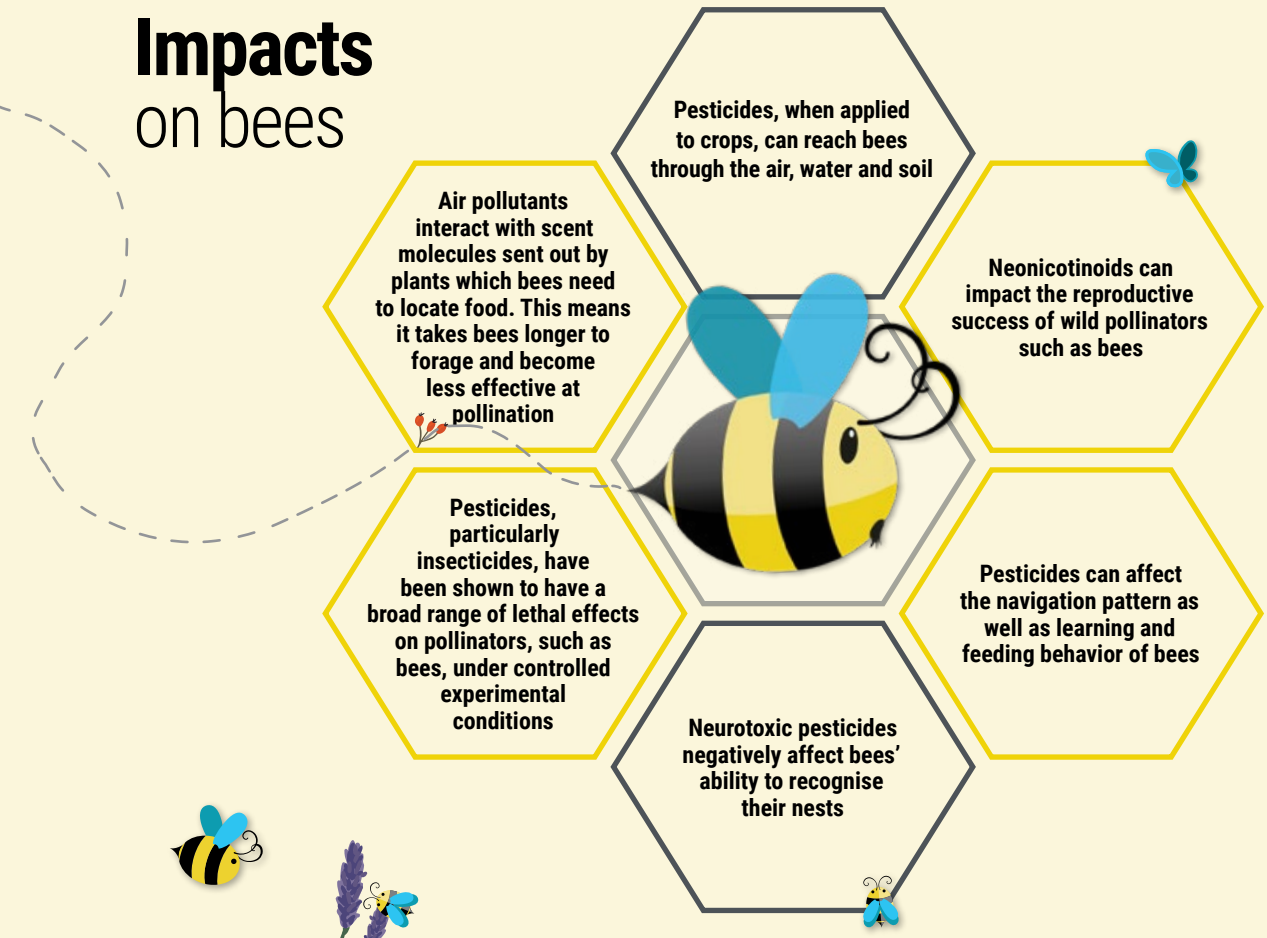
The use of herbicides to control weeds indirectly affects pollinators by reducing the abundance and diversity of flowering plants providing pollen and nectar.

Climate Change

The ranges, abundances and seasonal activities of some wild pollinator species (e.g., bumble bees and butterflies) have changed in response to observed climate change over recent decades.

Generally, the impacts of ongoing climate change on pollinators and pollination services to agriculture may not be fully apparent for several decades.

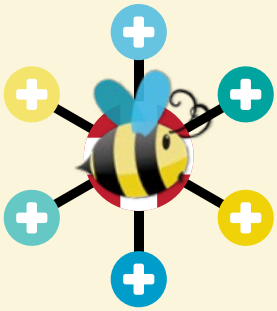
Impacts on bees



Did you know?

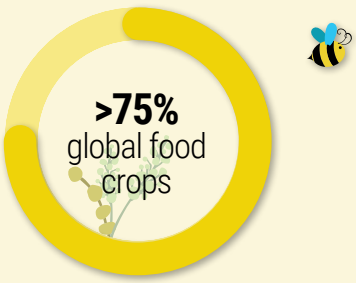
Beekeeping provides an important source of income for many rural livelihoods. The honey bee is the most widespread managed pollinator in the world with **81 million hives producing 1.6 million tonnes of honey annually.**

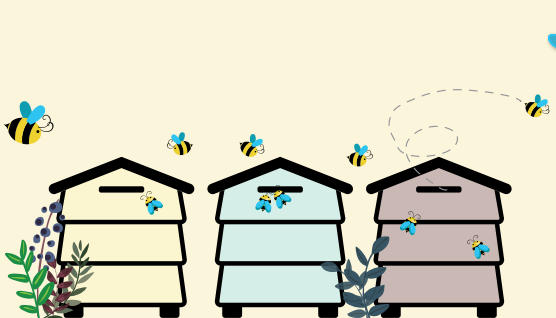
Pollinators contribute directly to medicines, biofuels, fibres, construction materials, musical instruments, arts and crafts, recreational activities and also to sources of inspiration.



France became the first country in Europe to protect its dwindling bee population by **banning five pesticides** researchers believe are killing off the pollinators.

More than three quarters of the leading types of global food crops rely to some extent on pollination for yield and/or quality. Pollinator dependent crops contribute to 35% of global crop production volume.

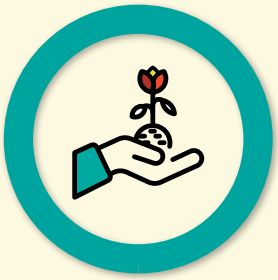




Policy Management and **Change Opportunities**

Several features of current intensive agricultural practices threaten pollinators and pollination.

Three complementary approaches to maintaining healthy pollinator communities and productive agriculture are:



Ecological intensification

Creating friendly habitats for bees and other pollinators.

Strengthening existing diversified farming systems to foster pollinators and pollination through practices validated by science or indigenous and local knowledge

Investing in ecological infrastructure by protecting, restoring and connecting patches of natural and seminatural habitats throughout productive agricultural landscapes.

Exposure of pollinators to pesticides can be decreased by reducing the use of pesticides, seeking alternative forms of pest control and adopting a range of specific application practices.

Actions to reduce pesticide use include promoting Integrated Pest Management (IPM)—upported by educating farmers, organic farming, and policies to reduce overall use.

Bees suffer from a broad range of parasites. Emerging and re-emerging diseases are a significant threat to the health of honey bees, bumble bees and solitary bees. Greater emphasis on hygiene and the control of pathogens would help reduce the spread of disease across the entire community of pollinators.

Measures should be taken to adapt responses to climate change, which can include increasing crop and regional farm diversity as well as targeted habitat conservation, management or restoration.

About UN Environment

UN Environment is the leading global voice on the environment. It provides leadership and encourages partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations. UN Environment works with governments, the private sector, civil society and with other UN entities and international organizations across the world.

About the Chemicals and Health Branch

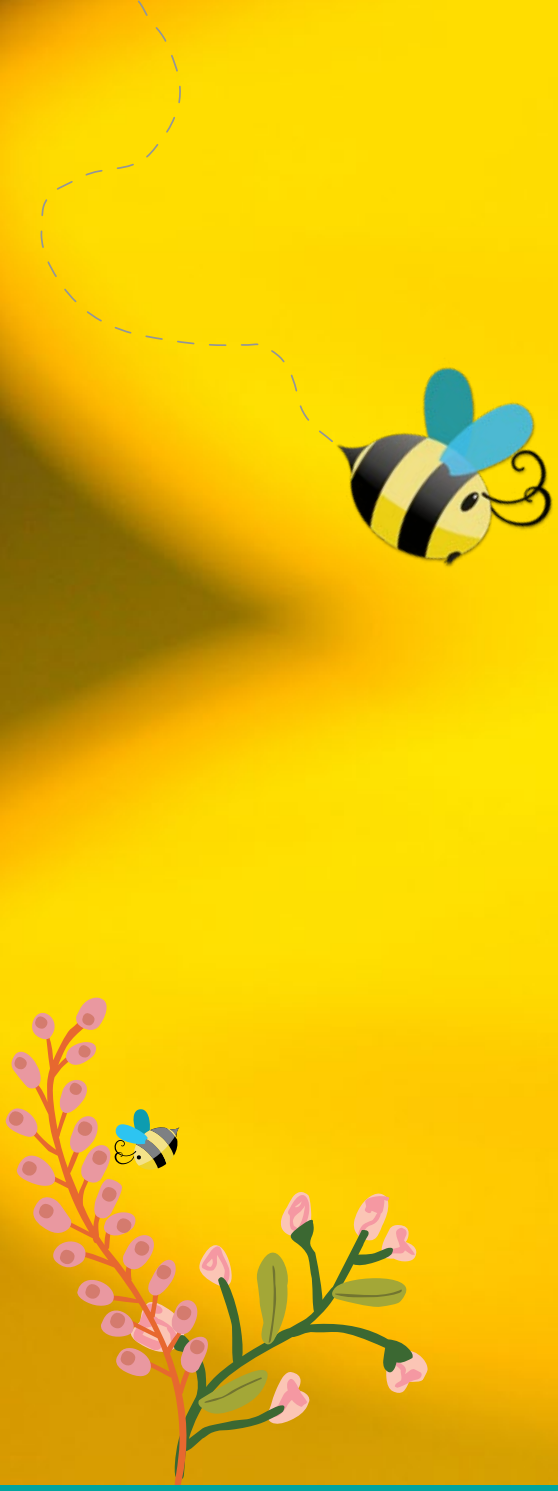
The UN Environment Chemicals and Health Branch works to minimize the adverse effects of chemicals and waste on human health and the environment. Chemicals are integral to almost all sectors of society, bringing important benefits in areas from medicine and agriculture to consumer goods, clean technologies and poverty alleviation. While chemicals and waste are major contributors to world economies, their sound management is essential to avoiding risks to human health and ecosystems and substantial costs to national economies.

About IPBES

The Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) is the intergovernmental body which assesses the state of biodiversity and ecosystem services, in response to requests from Governments, the private sector and civil society. IPBES has a collaborative partnership arrangement with UNEP, UNESCO, FAO and UNDP. Its secretariat is hosted by the German government and located on the UN campus, in Bonn, Germany.

About SAICM

The Strategic Approach to International Chemicals Management (SAICM) is a global policy framework working to promote the sound management of chemicals and waste. SAICM's overall objective is the achievement of the sound management of chemicals throughout their life cycle so that by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health. The UN Environment Programme hosts SAICM.



Content within this booklet was taken from the 2016 IPBES assessment report on Pollinators, Pollination and Food Production.

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