



# CASE STUDY: POLLINATORS

## The importance of pollinators

Animal pollinators (insects, bats, birds) play a key role in maintaining healthy ecosystems, and contribute to crop pollination, as 3 out of 4 crops rely on animal pollination to some extent (Kremen et al 2007). Pollination of crops for human benefit is a regulating ecosystem service, and therefore pollinators are considered ecosystem service agents. To provide some numbers, bees alone provide an ecosystem service estimated to be 22 billion Euros a year in Europe (Gallai et al. 2009). However, crop pollination by insects is at risk, as pollinators are declining in many parts of the world. This can have an important negative ecological and economic impact, that could significantly affect the maintenance of wild plant diversity, ecosystem stability, crop production, food security and human welfare (Potts et al 2010). Causes include loss of habitat, diseases, invasive species, intensified agricultural management (pesticides, herbicides, monocultures), and climate change. Many of these threats are incentivised by current economic systems.

## Canola oil in Europe

Canola oil, also named turnip or rape seed oil (*Brassica napus*) is the major oilseed crop cultivated in Europe (59% of oilseed crops), with 21,7 million tonnes harvested in 2015 (EUROSTAT, 2018). This crop highly benefits from pollinators which increase the yield (Bommarco et al. 2012). Canola oil is a perfect example of a monoculture: a large portion of agricultural land dedicated to optimize the production of a single crop. While the crop is in full bloom, a beautiful and enormous blanket of yellow flowers sweeps across the landscape. However, for pollinators, monocultures that all flower at exactly the same time can have bitter-sweet consequences.



Bottom left and right photo credit: Maria Blasí Romero

For example, for bumblebees, the blooming of canola oil looks like an all-you-can-eat buffet, as the crop provides significant amounts of food. However, after the blooming period (around 2-3 weeks), an incredibly extensive area in the landscape is left with nothing, meaning that bees will starve if there isn't any other flowering crop, or a diverse flower meadow near to their nest (depending on the bee species and their size, they can travel between 0.5 - 1.5 km to find food).

## The future of European pollinators...

The climate crisis and land use change are two of the main threats to healthy populations of pollinators in Europe. For pollinators, climate change can lead to changes in distribution, urging them to find more suitable areas to live in, or mismatches in the timing of when the young hatch and when their host plants grow food for them. This means that in the future there could be a decoupling between crops and pollinators. Land use change (due to industrial agriculture or urban expansion) means increased fragmentation and homogenisation of wild spaces. This can have a major effect on pollinators as they lose the ability to feed large populations and exchange genes across large distances, making them less able to adapt to changes.

In Europe, 80% of food crops rely on pollinators, and if pollinators continue to decline, the price of food can drastically increase (Stathers, 2014, COM(2021) 261 final).

## Reversing the decline of pollinators

We can mitigate our impacts on pollinators by switching to sustainable agricultural practices that will provide them with habitats for nesting, shelter and sufficient food resources during their whole life cycle. For example, actions that include the conservation of semi-natural grasslands, planting flower strips or hedgerows next to fields, intercropping, sowing crops that bloom at different times of the year, and the promotion of late mowing. However there are actions we can take at political, individual or business levels that can help build a better future for pollinators.

### 1. Policy level

The EU Green Deal, Farm to Fork, Biodiversity Strategy programs all aim to benefit pollinator diversity and populations. However, we are facing one big problem with the EU budget: the Common Agricultural policy (CAP). The CAP represents 40% of the EU budget (!) and 70% of this budget is not spent where it is most needed. We need more political support for environment- and climate-friendly practices, which can be achieved by supporting farmers with result-based payments, and better monitoring of the outcomes (Scown et al. 2020).

### 2. Individual level

Beware of beewashing: actions which focus on honeybees (domestic bees) and not local pollinator diversity. Wild bees are the ones best suited to the local environment and are the ones most heavily affected by the previously mentioned threats. As individuals we can help by getting informed and involved. For example, (1) buy from local sustainable farmers, (2) get involved in citizen science projects focussing on pollinators, (3) plant native plants and trees! (Beehotels wont work if we don't provide flowers nearby!)

### 3. Business level

All sectors of society are needed, this includes businesses. Depending on the sector businesses can help by (1) choosing local environmentally sustainable options for canteens or products, (2) creating pollinator-positive garden areas on commercial properties, (3) fund local actions to improve pollinator habitats and local awareness through social good initiatives. These are just some ideas that can improve the future for both pollinators and people!

### References:

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