



# PROTECT OUR POLLINATORS

**Let's Protect Our Pollinators**  
Our Harvest Depends on Them!

## 1. What is insect pollination?

Pollination is when helpful insects like bees, butterflies, and beetles carry tiny yellow pollen from one flower to another, helping plants produce the fruits and seeds we grow on our farms.

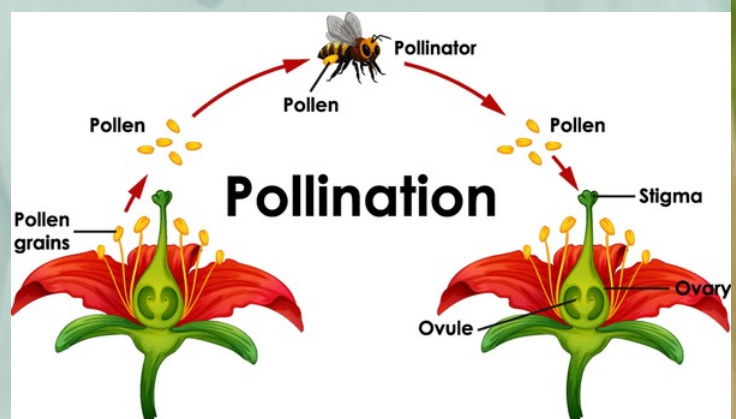
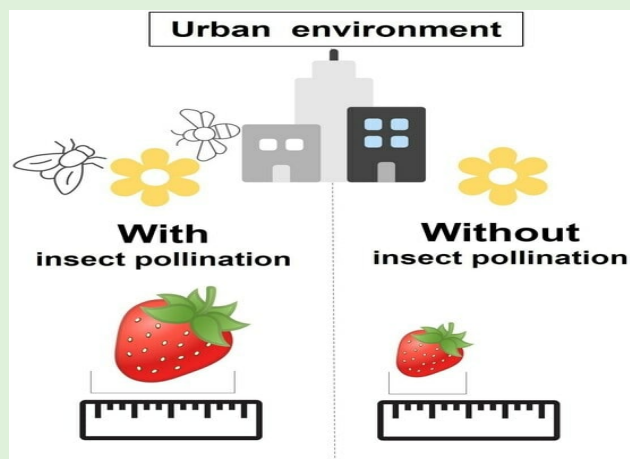


Figure 1. A bee on a flower with visible yellow pollen grains on its body, with arrows showing pollen transfer between flowers

## Protect our pollinators



Just like we need to plant seeds to grow our crops, many plants need pollination to create the fruits, vegetables, and grains we harvest for food and income.

Figure 2. Comparison of a well-pollinated fruit or vegetable next to a poorly pollinated one, showing clear size and quality difference

When pollinators visit flowers to drink sweet nectar for energy, pollen sticks to their bodies and gets carried to the next flower they visit.

In Ethiopia, important crops like coffee, onions, mangoes, avocados, and vegetables depend on insect pollinators to grow well and produce good harvests that feed our families and provide income.



Figure 3. Close-up of a bee with pollen on its legs flying from one flower to another in an Ethiopian farm setting



Figure 4. Ethiopian farmer harvesting healthy coffee (left) and avocado (right) with pollinators flying nearby in a recognizable Ethiopian landscape.

By protecting pollinators and providing them with flowers and safe habitats on your farm, you can improve your crop yields, quality, and farm income.



## 2. Why pollinators matter?

### 2.1. Food production

- Good pollination boosts Ethiopian harvests.
- Adequate pollinators mean larger fruits and more seeds.
- Key Ethiopian crops rely on insect pollination.
- Coffee, a vital export, depends on pollinators for beans.
- Fruit crops like mango and avocado need insect visitors.
- Vegetables such as tomatoes and onions yield better with pollination.
- Healthy pollinator populations boost crop yields by up to 90%, increasing available food and income.
- Support these vital insects by providing wildflowers and water, while using pesticides cautiously, to ensure better future harvests.

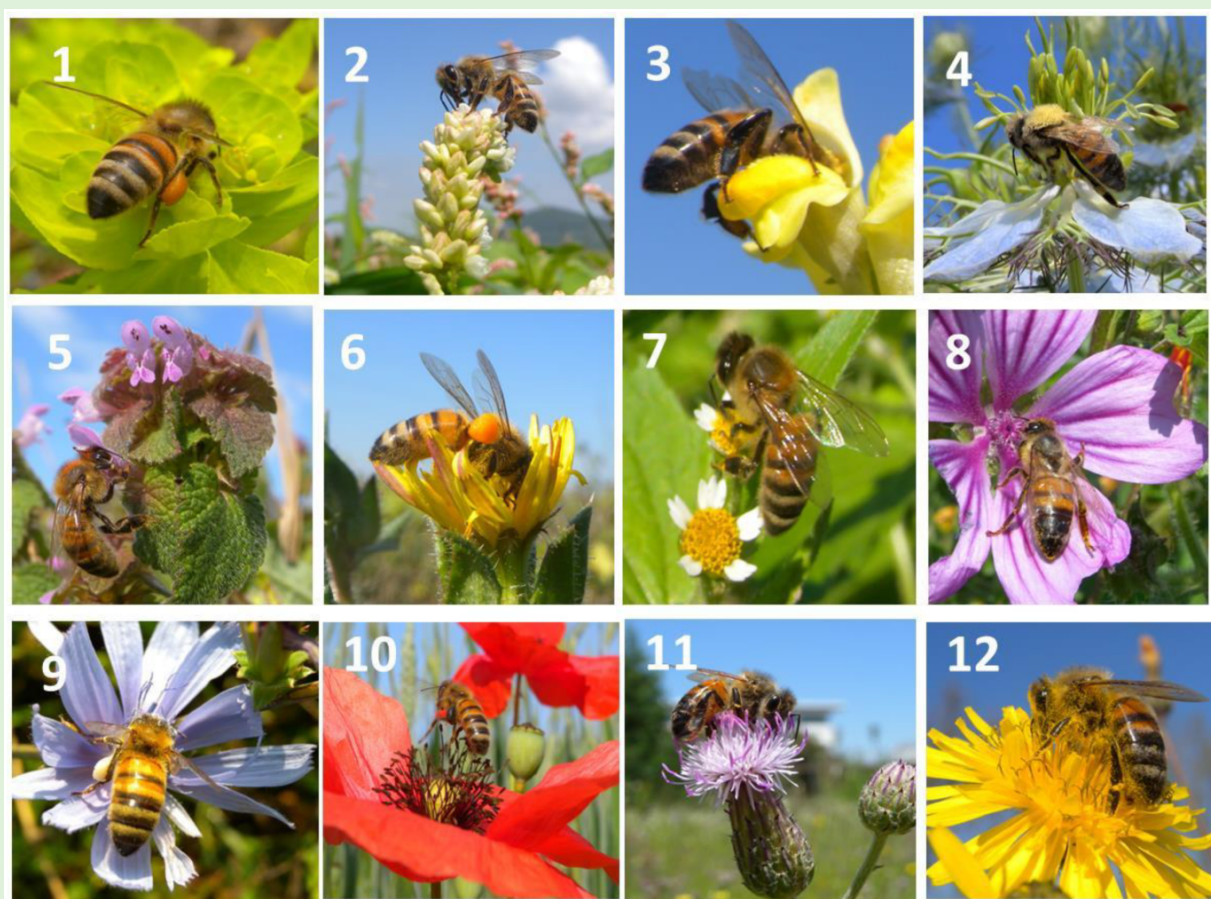


Figure 5. Various Ethiopian pollinators including honeybees, stingless bees, butterflies, and beetles on different crops.

### 2.2. Maintain Biodiversity and ecosystem health

- Protecting pollinators boosts harvests and supports vital wild plants.
- Conserving pollinators ensures land productivity for future generations.
- Pollination creates a vital natural cycle of life in ecosystems.
- Thriving pollinators support healthy ecosystems and prevent soil erosion.
- Healthy pollinators mean productive farms and preserved landscapes

## 3. Local Pollinators

- About 87% of global flowering plants require pollinators.
- Ethiopia's 33 crops (62.2%) need pollinators for viable seeds.

### 3.1. Honey bees

- Bees provide 80% of agricultural pollination services.
- One third of global food supply relies on bee pollination.
- Pollination value exceeds honey production by 4.58 times.



Figure 6. Honey bees during collection of pollen and nectar from flowers

### 3.2. Stingless bees

- Stingless bees, 50% smaller than honeybees, build resin nests in trees and rocks.
- Pollinate 30% of tropical crops including mangoes and avocados.
- 100% colony death from destructive harvesting threatens 90% of populations.



Figure 7. Stingless bees on the flower and in their nests entrance

### 3.3. Carpenter bees

- Larger size enables earlier/late foraging than other bees.
- Pollinates 15+ crops: Visits wide range, including legumes and Solanum.
- Key for 30% of legumes: Crucial for tripping/buzz-pollination of specific plants.





Figure 8. Carpenter bees during foraging

### 3.4. Flies

- Flies: 2nd most important pollinators after bees, pollinating 70% of global food crops.
- Hairy bodies efficiently transfer pollen across diverse plants in any weather.
- Small flies vital for forest understory, supporting 1000s of wild and medicinal plants.

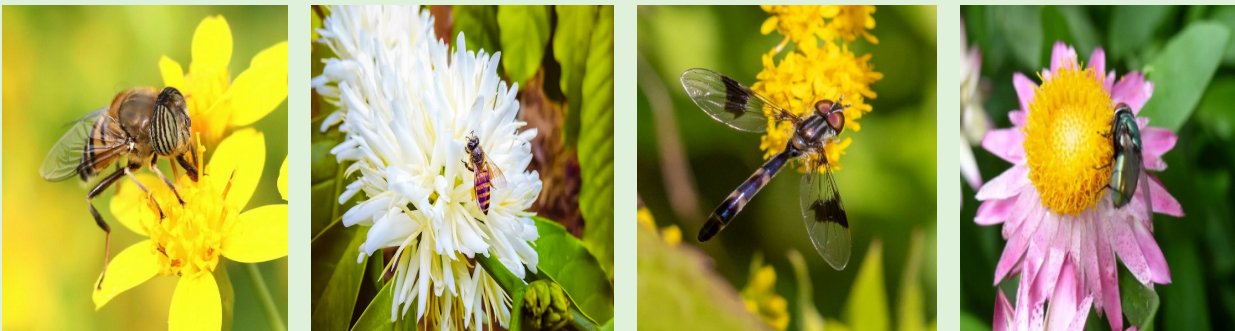


Figure 9. Flies visiting flowers.

### 3.5. Butterflies and Moths

- "Butterflies: Day pollinators visiting 50+ flowers, enabling 15% of plant seed production."
- "Moths: Night pollinators serving 30% of flowering plants through nocturnal visits."



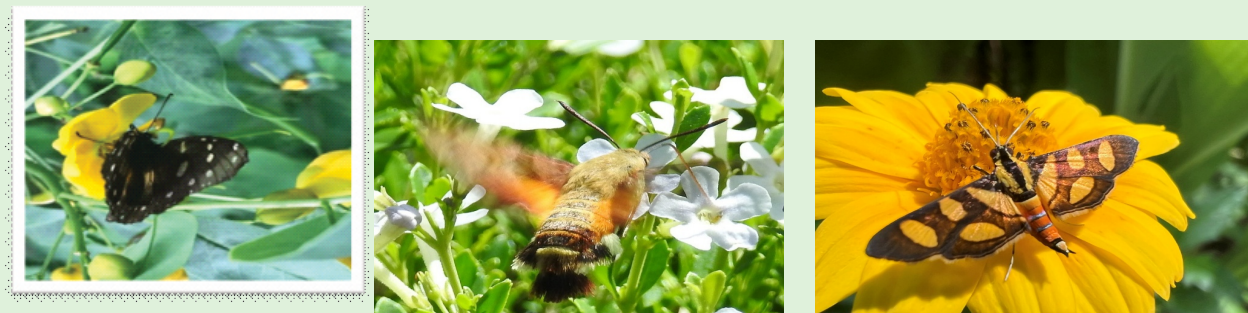


Figure 10. Butterflies and moths during feeding nectar and pollen

### 3.6. Beetles

- Ancient pollinators: 30%+ crops such as Niger seed (Nug), Faba beans some fruits like avocado, mango, etc rely on beetles.
- Overlooked yet vital: 20%+ global pollination.



Figure11. Beetles foraging on flowers

## 4. Threats to pollinators

<b>Pesticide misuse</b>	Spraying pesticides during flowering kills bees and beneficial insects
<b>Habitat loss</b>	Cutting trees and burning vegetation removes pollinator feeding and nesting sites.
<b>Monocropping</b>	Growing only one crop reduces the variety of flowers and food sources for pollinators.
<b>Climate change</b>	Changing rainfall and temperatures disrupt plant flowering times and pollinator behavior
<b>Over-tilling</b>	Frequent soil disturbance destroys nesting sites for ground-dwelling bees.
<b>Disease and Pests</b>	Honeybees and wild bees can suffer from mites, fungi, and viruses

## 5. What Farmers Can Do?

- Grow flowering plants and trees around farms.
- Native species like Vernonia, Cordia, and Sesbania attract bees and butterflies.
- Avoid spraying pesticides during flowering or when bees are active. If spraying is

needed, do it early in the morning or late evening.

- Keep natural areas such as hedgerows, field margins, and riverbanks. These areas serve as safe habitats for pollinators.
- Leave some dry soil or hollow stems around the farm to provide nesting sites for wild bees.
- Avoid burning crop residues or clearing all trees. Fire destroys food and nesting places for pollinators.
- Work together with neighbors and local groups to create pollinator-friendly farming landscapes.
- Keep bee colonies healthy and avoid spreading diseases through dirty tools or bee movements.

## 5. Benefits of Protecting Pollinators

- Higher crop yields and better fruit and seed quality.
- More honey, beeswax, and other bee products for income.
- Healthier soils, increased biodiversity, and resilient farms.
- A sustainable and secure food future for our children and communities.
- When farmers protect pollinators, they protect their own harvests, their environment, and the livelihoods of future generations.

Contacts for guidance, training, or technical support your local Agricultural Extension Office or any of our pollinator advocacy group representative from the following organizations:-

- HU-WGCFNR JRS Biodiversity/Pollinator project: Zerihun Girma : email: zed7583@gmail.com; 0922127083
- Ministry of Agriculture (MoA) representative – Motuma \_\_\_\_\_
- Bale Mountains National Park: Aschalew \_\_\_\_\_
- Keffa Biosphere Reserve representative: Kefalew \_\_\_\_\_ ; 0917106177
- Ethiopian Biodiversity Institute (EBI) representative: Manaye Misganaw; manaye9@gmail.com; 0913823986

**For further information visit us on**

WGCF JRS Biodiversity project: <https://web.facebook.com/JrsBiodiversity>





**PROTECT THE POLLINATORS PROTECT OUR  
FOOD AND FUTURE! POLLINATORS MAY BE  
SMALL, BUT THEY PLAY A GIANT ROLE IN  
KEEPING OUR FARMLANDS PRODUCTIVE  
AND OUR FOOD SYSTEMS ALIVE.  
TOGETHER, WE CAN ENSURE THEIR  
SURVIVAL AND OUR OWN**