

You be the pollinator

Pollinating plants by hand is a fascinating and useful gardening skill, particularly important for indoor gardens, greenhouses, or in areas where pollinator populations are declining. It's a simple process that can significantly increase the yield of fruits, vegetables, and seeds in your garden.

Understanding pollination

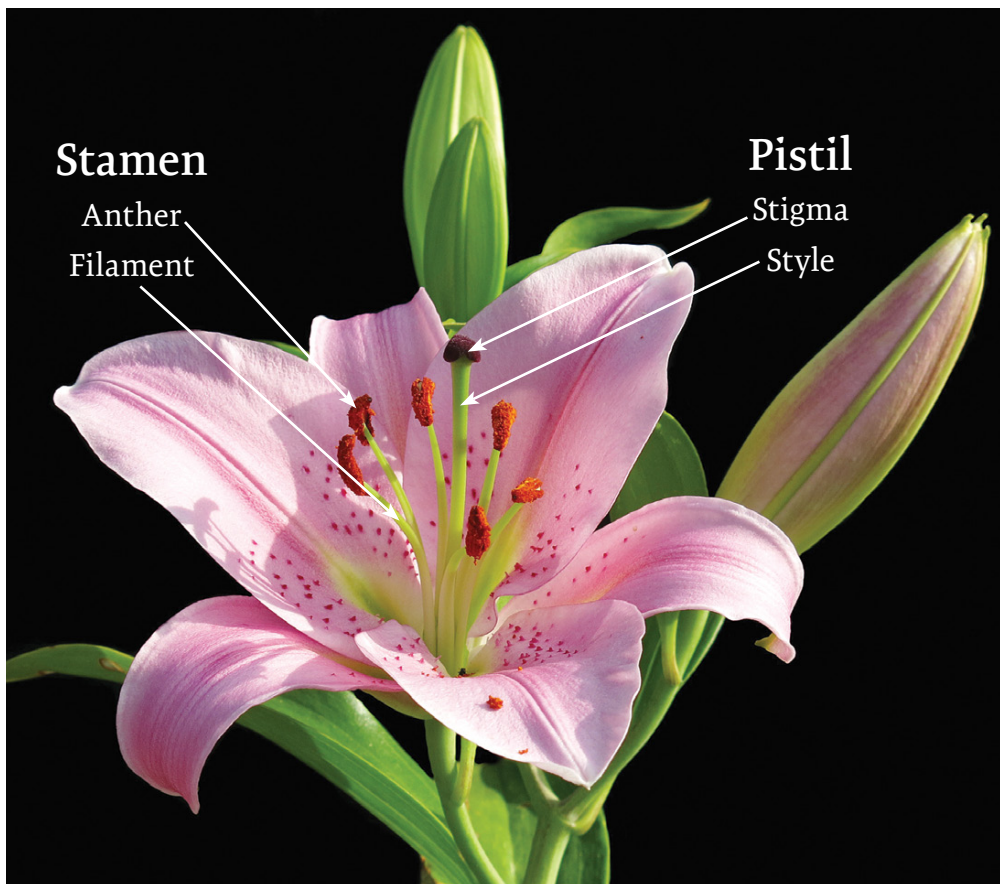
Pollination is the transfer of pollen from the male parts of a flower (the anthers) to the female part (the stigma) of the same or another flower. This process is crucial for the production of fruits and seeds. While many plants rely on bees, butterflies, birds, and other animals for pollination, some situations require human intervention.

How to do it

First, you need to understand the flower structure of your plants. Some plants have flowers with both male and female parts (perfect flowers), while others have separate male and female flowers (imperfect flowers). For example, tomatoes and peppers have perfect flowers, whereas squash and cucumbers have imperfect flowers.

For perfect flowers, gently brush the pollen from the anthers to the stigma within the same flower or between flowers on the same plant or different plants. That's it. Done and dusted! (Pun intended.)

For plants with separate male and female flowers, identify the female



Parts of the flower, as shown on a lily blossom.

flowers; they often have a swelling at the top of the stem, just under the bloom, that looks a little like the fruit. Collect pollen from the anthers of the flowers without the swelling using a small brush or cotton swab. Gently brush the

collected pollen onto the stigma of the female flower. In some cases, such as with squash and cucumbers, you might directly touch the male and female parts together to ensure pollination: pull off a male flower and smoosh it into a female flower.

Why be the pollinator?

1. Low pollinator activity. In areas with declining bee populations or insufficient presence of other natural pollinators, hand pollination can ensure that plants are pollinated. This is crucial for the production of fruits and seeds.

2. Indoor gardens and greenhouses. Plants grown indoors or in greenhouses may not have access to natural pollinators. Hand pollination allows these plants to produce fruit and seeds.

3. Increase yield. Even in environments with adequate pollinator activity, hand pollination can increase the yield and quality of fruits and vege-

tables. By ensuring that flowers are effectively pollinated, gardeners can maximize the productivity of their plants.

4. Educational purposes. Hand pollination offers a unique educational opportunity to learn about plant biology and the pollination process. It can be a valuable hands-on learning experience for students, garden enthusiasts, and anyone interested in botany.

5. Pollination of specific plants. Some plants, especially exotic or specialty varieties, may require specific pollinators that are not present in their growing location. Manual polli-

nation ensures that these plants can still reproduce and produce fruit.

6. Unfavourable weather conditions. Poor weather conditions, such as rain, high winds, or extreme temperatures, can inhibit the activity of pollinators. During such times, hand pollination can be a reliable alternative to ensure that plants are pollinated.

7. Controlled breeding. Hand pollination enables precise control over plant breeding, allowing gardeners and breeders to produce specific plant varieties. This is especially useful in developing new plant varieties with desired traits, such as disease resistance or improved flavour.



Tomato blossoms are perfect.



Female cucumber blossom. Can you see the cucumber-shaped swelling next to the flower?



Male cucumber blossom.

Continue the pollination process with other flowers on your plant or in your garden, ensuring that you're using pollen appropriately if you're working with different plant species.

Tips for hand pollination

- Timing is crucial. Flowers are often most receptive in the morning, so aim to pollinate early in the day.
- Be gentle. Flowers are delicate, so work carefully to avoid damaging them.
- Know your plants. Understand-



ing whether your plants are self-pollinating or require cross-pollination with another plant is vital.

- Monitor your plants. After pollination, keep an eye on your plants for signs of successful fertilization, such as fruit development.

Hand pollinating plants can be a rewarding experience, offering a deeper connection with your garden and ensuring the productivity of your plants. Whether you're dealing with low pollinator activity or growing plants indoors, manual pollination is a simple yet effective way to enhance your gardening success. 🌸

Buzz pollination

Buzz pollination, also known as sonication, represents a fascinating facet of the natural world where certain plants have evolved to release their pollen only when vibrated at specific frequencies. This process is a vivid demonstration of the intricate relationships between flora and fauna, showcasing the specialized adaptations that have emerged through millennia of co-evolution.

Buzz pollination involves a unique interaction primarily between certain flowering plants and their pollinators, most commonly bees from the genus *Bombus* (bumblebees). About 9 percent of plants you come across require buzz pollination, including tomatoes, eggplants, peppers, potatoes, blueberries, cranberries and bearberries.

Unlike the more common method of pollination where pollen grains freely dust the bodies of visiting insects, which then transfer pollen from flower to flower, buzz-pollinated plants hold their pollen inside tubular anthers, releasing it only when the right “buzz” is applied.



The process is quite remarkable: a bumblebee or another capable insect will grab onto the flower and rapidly vibrate its flight muscles without flapping its wings, producing a high-frequency buzz. This vibration is transferred to the flower, shaking loose the pollen grains inside the anther, which then adhere to the insect's body. When the bee visits the next flower, some of this pollen is transferred, fertilizing the plant.

What makes buzz pollination especially intriguing is its mutual benefit. For the plants, it ensures that pollen is only collected by pollinators capable

of triggering release, reducing waste and increasing the chances of successful cross-pollination. For the pollinators, it provides access to a rich and exclusive food source, as not all insects can perform the necessary buzz.

However, buzz pollination is under threat due to various factors including habitat loss, pesticide use, and the decline of pollinator populations. The specificity of this pollination method means that the decline of suitable pollinator species can significantly impact the reproductive success of buzz-pollinated plants. Conservation efforts are crucial to protect these specialized pollinators and maintain the biodiversity and resilience of ecosystems.

Buzz pollination is a testament to the complexity of natural selection and the delicate balance of ecosystems. It highlights the importance of conserving pollinator species and their habitats to ensure the continued success of this unique pollination method, which is vital for the reproduction of certain plants and the overall health of ecosystems.