

Garden How-to: Choosing Flowers to Welcome a Diversity of Pollinators

We might like to think that flowers were placed on this Earth to please us, but there's a purpose behind their beauty. The great variety in shape, size, color, fragrance, patterns, timing of bloom, and other flower characteristics is the result of plants' close association with their main pollinators.

Because most plants are rooted in place, they can't go chasing after a mate. Flowers are the way many plants attract the insects, birds, and other organisms they depend on to move pollen from one flower to another, or between plant parts within the same flower. Successful pollination results in fertilization and the subsequent formation of seeds. For many plants, their flowers' ability to attract suitable pollinating organisms is vital to the plants' long-term survival.

When the pollen is transferred within a flower, it's called self-pollination and the offspring are genetically similar to the parent plant. Although that can be a successful survival strategy, it doesn't create the genetically diverse offspring that result from cross-pollination between two distinct parent plants. Inheriting genes from both parents results in the genetic diversity that keeps plant populations healthy and is critical if plants are to adapt over time to challenging or changing circumstances.

Flower Features

Plants have evolved ways to lure bees, butterflies, and other pollinators, often with the promise of sugary nectar as a reward. Pollinators stop by for a sip, and then move on to other flowers, inadvertently transferring pollen.

Pollinators vary in their preference for flower shape. Here are some common flower shapes.

Bowl-shaped flowers



Bellflower



Wild rose



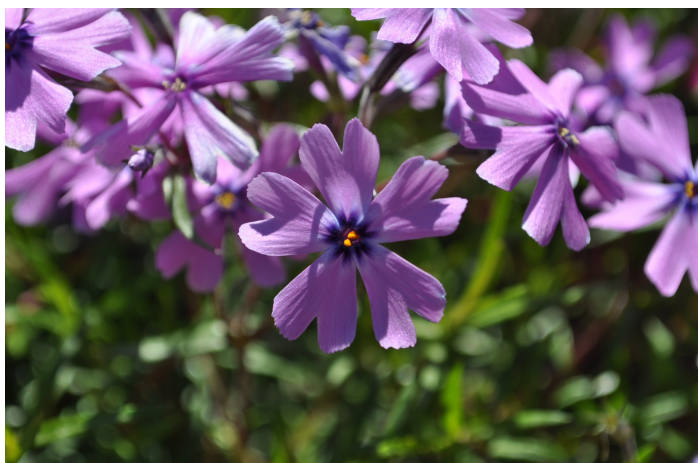


Pasqueflower



Poppy

Flat flowers



Garden phlox



Cranesbill



Beach plum



Dianthus

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Lipped

(The lips provide a landing spot for pollinators)



Salvia



Agastache



Catmint



Corydalis



Lamium



Linaria

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Tubular



Cuphea



Columbine



Honeysuckle

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Bell



Foxglove



Crossvine



Weigela

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Trumpet



Dipladenia



Oriental lily

Clusters



Alyssum



Bugloss



Sedum



Butterflybush

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Composite flowers



Dandelion



Osteospermum



Zinnia



Tithonia



Sunflower



Purple coneflower

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Closed blooms

(These require larger, stronger insects, such as bumblebees, to force open the blooms)



Lupine



Lupine (open)



Snapdragon



Snapdragon (open)

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Nectar guides

On some flowers, visual cues called nectar guides act as beacons to certain pollinators. Nectar guides are especially important for bees and butterflies. Because these insects are able to see ultraviolet light, the nectar guides may be invisible to the human eye.



Foxglove
(nectar guide: spots)



Gaillardia
(nectar guide: bull's-eye rings of color)



Iris
(nectar guide: stripes and spots)

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Pollinator Preferences

Choosing plants in a range of these flower shapes will attract the most pollinators. Here are the shape preferences of some familiar pollinators, as well as other characteristics that attract them.

Pollinators	Color	Shape	Scent	Examples
Butterflies Butterflies need a sunny location protected from wind, where they can bask and feed. They need a landing spot for feeding.	Bright colors, including red, orange, yellow, pink, blue, and purple.	Flat-topped flowers; also small flowers in tight clusters.	Butterflies have a weak sense of smell, so scent isn't important to them.	Phlox, gaillardia, zinnias, butterflyweed, milkweed.
Bees Bees feed through a rigid, hollow tube called a proboscis. Proboscis length differs among bee species, and will determine whether or not a bee can reach a flower's nectar. Therefore, different bee species are attracted to different flowers. Here are their general preferences.	Yellow, blue, and purple.	Open or bowl-shaped flowers with landing platform, lipped flowers, flower clusters, flowers shaped like wide tubes.	Sweet, fresh	Bellflower, poppy, delphinium, alyssum, cranesbill, salvia, lamium, shrub roses. Lupines and snapdragons are pollinated by large bees that can open the closed or hinged flowers.
Hummingbirds Hummingbirds prefer flowers with long, narrow central tubes, where the bird can insert its long beak. These flowers often droop or hang. Because they feed in flight, hummingbirds don't need flowers with landing pads or lips.	Red, orange, and purple-red.	Tubular, with lots of nectar.	Hummingbirds have no sense of smell so fragrance isn't important.	Agastache, cuphea, red-flowered sages, columbine, dipladenia.

Moths Less dramatic their day-flying kin, moths are nonetheless important pollinators. Their preferences differ from those of butterflies.	Light-colored or white flowers that open at dusk.	Some moths hover as they feed, and so don't need landing areas.	Unlike butterflies, moths have a good sense of smell, so fragrance is an important attractant, preferably a strong, sweet scent that is emitted at night.	Moonflower, angel's trumpet (Brugmansia), nicotiana, evening primrose.
Beetles Beetles are considered relatively inefficient pollinators (in some cases also feeding on the flower parts). However, they are important pollinators in areas where there are few bees, such as arid regions.	White or dull-colored — they can't see color	Fruity, fermented (fetid for some beetle species).	Open, bowl-shaped.	Magnolia, water lilies; otherwise, there are few familiar flowers that are pollinated mainly by beetles.
Bats Bats have poor eyesight but a keen sense of smell.	Light-colored flowers that bloom at night.	Strong, often fruit-like or musty scent.	Bowl-shaped.	Cactus flowers.

Single vs. Double Blooms

Plant breeders have been hard at work producing flowers with extra-showy double blooms; that is, they have extra rows of petals that sometimes cover the entire face of the flower, obscuring the flower structures necessary for pollination. For pollinator gardens, choose single varieties, with just one row of petals and visible reproductive parts.



Rose (single bloom)



Rose (double bloom)



Dianthus (single bloom)



Dianthus (double bloom)



Camellia (single bloom)



Camellia (double bloom)

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