



## Attracting pollinators to your garden

Pollinators are essential for high yield and high quality of many vegetables and fruits in the garden. For example, strawberries, squash, melons, sweet cherries, and apples must have pollinators to ensure a high yield of good produce.

Gardeners can do several things to preserve, protect, and attract pollinators.

- Diversify garden plantings to offer a variety of flower colors, fragrances, and shapes throughout the growing season.
- Consider leaving flowering weeds such as clover, wild parsnip, and dandelions to serve as alternate nectar sources for pollinators.
- Limit pesticide use.
- When insecticides are necessary use those that are least disruptive and apply when pollinators are least active (very early morning, late evening, or after dark).
- Do not apply insecticides to plants that are blooming or when it is windy.

## For more information

Check these Web sites:

ISU Entomology—  
[www.ent.iastate.edu](http://www.ent.iastate.edu)

ISU Extension Distribution Center—  
[www.extension.iastate.edu/store](http://www.extension.iastate.edu/store)

ISU Horticulture—  
[www.yardandgarden.extension.iastate.edu](http://www.yardandgarden.extension.iastate.edu)

Iowa Master Gardeners—  
[www.mastergardener.iastate.edu](http://www.mastergardener.iastate.edu)

Reiman Gardens—  
[www.reimangardens.iastate.edu](http://www.reimangardens.iastate.edu)

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# Pollinators in the Garden



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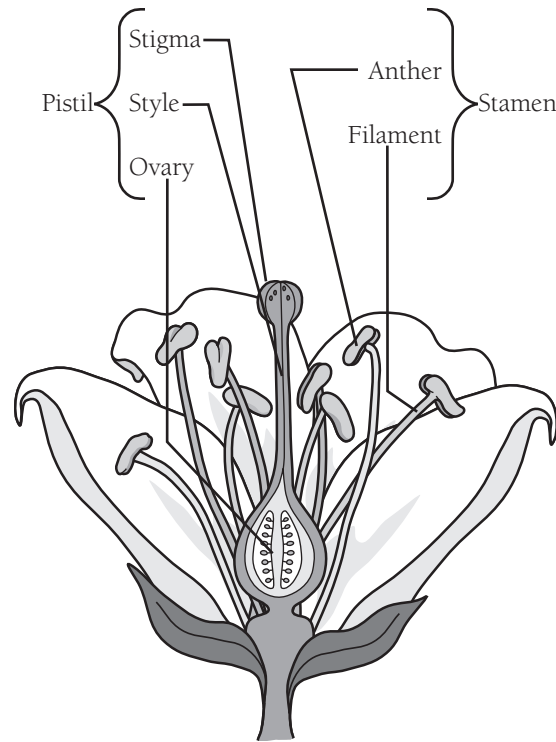
**F**lowers offer more than meets the eye and nose as we enjoy their colorful, fragrant beauty. Beyond our pleasure is their role in sexual reproduction that ensures continuance of the plant species. Flowering followed by pollination must happen for plants to produce seeds. Without pollination most fruits and vegetables will not set fruit, the fruit will be incomplete or misshapen, or the yield will be low.

### What is pollination?

Pollination is the transfer of pollen from the anther (male organ of the flower) to the stigma (female organ of the flower). The culmination of pollination is fertilization, the union of the male sperm nucleus contained in the pollen with a female egg located inside the ovary. To achieve fertilization the pollen grain that lands on the stigma must grow downward through a structure called the style and arrive in the ovary where the eggs are located. If pollination and fertilization are successful the result is a fertilized egg that may grow into a seed.

Plants vary in the way they accomplish pollination. Some plants—such as corn, grape, soybean, tomato, eggplant, and pepper—have female and male organs close together in the same or adjacent flowers. Wind releases the pollen so that it falls onto the stigma without difficulty; no aid or assistance is needed. For other plants the pollen will not fall easily to the stigma so another means of transporting pollen is necessary. These plants depend on pollinators, usually insects, to carry pollen from one flower to another—more specifically, from the male flower parts to the female flower parts.

Although we appreciate flowers for their beauty, the colors, shapes and even fragrances first evolved for only one purpose: to attract pollinators. Flowers with bright colors (especially blue,



yellow, red, and violet) attract pollinators during the daytime. At night, fragrance overrules color in importance.

Coevolution of flowers and pollinators has resulted in spectacular differences among flowers. Some flowers have variations in colors or lines that point the pollinator toward the nectar. Other flowers use traps, twists, or other devices to force pollinators into contact with the pollen.

Everything about the flower (shape, size, structural arrangement, and fragrance) is important for attracting pollinators and maximizing pollination efficiency. Consequently, different flowers attract different pollinators.

### Common pollinators in Iowa

Insects that commonly serve as pollinators in Iowa include honey bees, bumble bees, solitary bees such as mining bees and leafcutter bees, flower beetles, hover flies, and butterflies. These insects are not selflessly doing a favor to the flowers. They are enticed to do the job with a reward of food—nectar (sugar and water) and pollen (protein). In a honey bee hive, for example, all the members of the colony are nourished by the pollen and nectar brought in by the worker bees. Hummingbirds, certain bats, and a few other animals also are pollinators.

Insects have many highly modified structures to accomplish the dual tasks of obtaining food and carrying pollen. For example, the mouthparts of some pollinators are adapted for reaching past the anthers and stigmas. Butterflies and moths have a long tubular proboscis for reaching to the bottom of the flower. Similarly, certain bees have “tongues” for drawing up nectar as the insects walk on the exposed anthers. Beetles and ants have short mouthparts and are unable to reach nectaries located deep in the flower without crawling completely inside.

Once the pollinator flies or crawls to the flower, the mouth, body, antennae, or legs may collect pollen that is dispersed to the next flowers visited by the pollinator.

