A Study in Plant Reproduction
March 21, 2015, Home Gardener’s School

1. Plants are propagated asexually (cuttings, grafting, etc.) and sexually by seeds. Each method has different advantages and consequences.

2. 80% of the flowers in the world have male and female reproductive parts in the same flower. They might look something like this: the flower with yellow petals in image 2.

3. and 4. Some plants have separate male and female flowers but they’re on the same plant: begonias, grain crops, oaks (and other economically important trees),

5. Some plants have male and female flowers on different plants:
   Hollies, willows, poplar, persimmon, primroses, meadow rue, Norfolk Island Pines

6. Few plants in the wild self-pollinate (pollination in the same flower, or between flowers on one plant) or it’s the last resort. For example, monkshood is usually pollinated by bumblebees, but if none visit the flowers due to bad weather, self pollination will occur.

   There are 2 ways nature prevents self pollination:
   male and female flowers separated by space or time such as male and female flowers on different plants, or even separated in the same flower chemical incompatibility

7. Flower color, shape, and orientation on the plant attract different pollinators. Sometimes the plant and the pollinator evolved together. For example, the yucca plant and the yucca moth

8. Hummingbirds and some insects have long beaks and tongues. They like orange, yellow and red flowers that face out.

9. Some flowers have landing platforms for the pollinator:
   Wild sage: the lower petal acts as a lever due to the weight of the pollinator landing on it. As a result, the male reproductive structure pushes forward depositing pollen on the back of the pollinator.

   Daisy family plants have many small flowers clustered on a flat surface. There may be 2 kinds of flowers in the head: ray flowers which are showy and attract the pollinator and disc flowers which are small, inconspicuous and tightly packed in the center of the head. The flat head facing up allows the pollinator to gather pollen and nectar while still looking for predators overhead.
Flowers that have ray and disc flowers: Gaillardia, sunflowers
Flowers that have only ray flowers: dandelion, spotted knapweed (invasive)

10. Pollen vs. Nectar
Pollen is essential, a solid; it contains amino acids, vitamins, antioxidants, minerals, and fat or oil. Except for pine pollen, it’s usually more nutritious than equal amounts of chicken, beef or whole wheat bread.

Nectar is not essential, a liquid, primarily sugar water, but no fat or oil. Sugar content varies from 8% to 50% depending on its origin in the plant. Nectar may contain toxins to deter robbing insects. Grapefruit nectar contains caffeine, tobacco nectar contains nicotine, and Sacred Datura contains a narcotic.

11. Robber insects and cheater plants
bumblebees, carpenter bees, and yellow jackets can be “robbers”
some cheater plants: begonias, camellias, clematis, poppies, peonies, and roses

12. Nectar guides may be visible to us (Gaillardia), or just the pollinator (dandelion).

13. Some plants change sexual expression depending on their age or the environmental conditions.
Male gingko and honey locust trees became female in the drought of ’80-’81
Jack-in-the-pulpit

There are fewer honeybees around due to colony collapse disorder, so make your yard a haven for native pollinators. See the following links:
See www.foxleas.com “How to Make a Bee Hotel”
Bumblebees nest in the ground, see www.bumblebeeconservationtrust.org

See these images and download if you wish from Google: http://bit.ly/SexInTheGarden

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