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# Amazing Sunflowers

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As you travel in rural Indiana this time of year, you may happen upon a field of sunflowers. It's so beautiful that drivers will occasionally pull off on the side of the road and take pictures. Perhaps you grow sunflowers in a more limited capacity in your home garden. Today, we'll review a few items of interest about these amazing sunflowers as a commercial crop and for gardens.

Sunflowers (*Helianthus annuus*) and their kin comprise perhaps the largest plant family called Asteraceae (formerly known as Compositae). This family of plants comprises about 10% of all flowering plants. Some relatives of sunflowers within this family include dandelion, aster, chrysanthemum, and zinnia. The family may be referred to as the aster, daisy, composite, or sunflower family.

Casual observers see sunflowers as big, beautiful, single flowers. However, sunflowers actually have a composite head, with a central cluster of small disc flowers surrounded by a ring of ray flowers that are usually sterile with conspicuous, straplike petals. Some flowers in this family, like dahlias and hybrid chrysanthemums, have no clear distinction between the two types of flowers in the composite flower.

If you've grown sunflowers, you may have noticed that the seed heads tend to follow the sun. Indoor gardeners have often noticed that plants bend toward sunlight. This is called phototropism, and it involves the plant hormone auxin. The process of tracking with the sun is called heliotropism, but its mechanics are more complicated. Researchers at UC Davis and UC Berkeley have discovered that the process involves an internal clock and the hormone auxin. Robert Sanders, Manager of Science Communications at UC Berkeley, wrote, "Sunflowers not only pivot to face the sun as it moves across the sky during the day, but they also rotate 180 degrees during the night to greet the morning sun."

According to North Dakota State University's Sunflower Production Guide, commercial sunflower growers typically grow one of three types of sunflower: oilseed types for vegetable oil, non-oilseed types for human food and bird food markets, and Conoil for dehull confection, oil, or bird food markets. Conoil sunflowers, short for "confection oil" sunflowers, are a hybrid type bred to bridge the gap between oilseed and confection (snack) sunflowers.

In Indiana, sunflowers will grow on most soil types that are suitable for corn or soybeans. They can be planted during the typical spring planting season, or as a double-crop after wheat. Double-crop sunflower plants are shorter and produce smaller heads than full-season sunflowers.

Former Purdue consumer horticulture specialist, Rosie Lerner, explained that gardeners will find two basic types of sunflowers available: those grown for edible seeds, and ornamental types. "Traditional sunflowers are generally quite tall (over 5 feet) with bright yellow blooms," she said. "Modern cultivars now offer a range of orange, gold, lemon-yellow, bronze, amber, mahogany-red and even white."

She said that highly branched plants may carry numerous smaller heads. "Some cultivars have been bred to fill the center with additional rows of ray-type flowers, giving a fuller, double-flowered appearance." Other sunflowers are available from dwarf types (1-2 feet) to intermediate height (3-5 feet).

"Sunflowers are easy to grow in just about any type of

garden soil and climate," she said. "Choose a sunny location for best flowering."

Finally, for the botanical math enthusiasts out there, the sunflower head represents one of the wonders of nature that involves the Fibonacci sequence, a set in which each number is the sum of the previous two. If you count the spiral rows of seeds clockwise and counter-clockwise on a sunflower starting with the same outside seed, you will usually find a pair of numbers from the sequence. That's just a teaser – look it up for yourself, then count seeds on a sunflower!

Find Lerner's original article, go to https://www.purdue.edu/hla/sites/yardandgarden/sunflowers-for-midwestern-gardens/. Find the above-referenced North Dakota State University resource at: https://www.ndsu.edu/agriculture/extension/publications/sunflower-production-guide.