



BOULDER COUNTY
COLORADO STATE UNIVERSITY
EXTENSION

Community Garden News



Dear Gardeners,

Lets all think happy thoughts that the fires will be under control soon, that the heat wave will wash away soon, the rains will come and give us all the water we need and that this nasty virus is finally out the door as well. What a year!

There have still the usual suspects of Japanese beetle, squash bugs, Mexican bean beetle and rabbits abound. There is some good news. So far, I have not seen the Harlequin bug. TA DA!

As for my efforts, there were hardly had any raspberries or blackberries this year despite my effort to thin and fertilize appropriately. I learned that YES, strawberries really don't last more than three seasons. Sunflowers do not really match the description on the packet sometimes, but are still worth the effort. Corn cages are WAY too much work, and I would gladly buy fresh corn at the farmer's market. Heirloom okra is larger, but more tender. ALSO, when picking basil flowers for a bouquet, they might look sad for a day before they spring back to life in the vase.

I always want to hear from you guys, so please let me know how your gardens are doing. :)

Happy Gardening!

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CSU Extension

The Extension office provides assistance and programs for citizens in five main areas: Agriculture, Horticulture, Family and Consumer Science, Natural Resources and 4-H Youth Programs.

Colorado State University Extension Mission Statement: Empower Coloradans to address important and emerging community issues using dynamic, science-based educational resources.

Please feel free to use our website as a reference tool for all things gardening and more. <https://boulder.extension.colostate.edu/horticulture/>

For Fact Sheets <https://extension.colostate.edu/publications-2/>

2020 Garden Policies <https://boulder.extension.colostate.edu/wp-content/uploads/sites/7/2020/03/Community-Garden-Policies-2019-1.pdf>

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Community Service

SOCIALLY DISTANT GROUP CLEAN UP DAY - SATURDAY, OCTOBER 3RD

There are two large plots that need to be cleared up and the hops need to be taken down and composted. I sure would appreciate any help I can get on these two plots as they have a multitude of weeds, iris, raspberries, miscellaneous perennials and old irrigation parts. Most of the perennials will be going into our demonstration gardens around the building or in the pollinator plot.

The time for community service is now! Please have projects approved by the CG manager before you complete them in order to receive credit.

In the News:

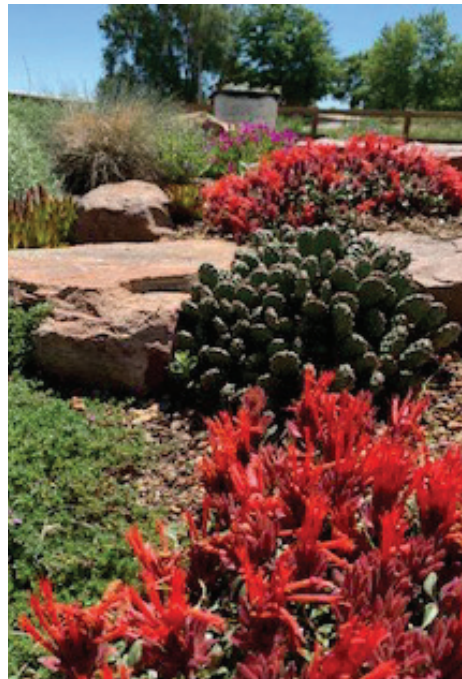
Daily Camera: Award for Demonstration Garden is a Bright Spot During Tough Times

Deryn Davidson, Colorado State University Extension Boulder County

By all accounts, these are trying times. So last week when the CSU Extension Boulder County Demonstration Garden received a Plant Select™ Showcase Garden Award, it felt extra sweet. The Plant Select™ program is a collaboration between Colorado State University, Denver Botanic Gardens and professional horticulturists. Their goal is to “create smart plant choices for a new American Landscape inspired by the Rocky Mountain Region”. The plants are trialed and chosen based on eight attributes: flourishing with less water, habitat friendly, tough and resilient in challenging climates, one of a kind/unique, resist

disease and insects, long lasting beauty, and non-invasive. These are all important qualities in plants that we invite into our spaces.

Our demonstration garden at the Boulder County Fairgrounds in Longmont is one of several such gardens across the state. You can glean a good amount of information from plant tags and online research, but it is helpful to see with your own eyes how plants perform after establishment, or to see plant combinations growing side by side. Many demonstration gardens are in public areas and therefore always open to visitors. They can provide inspiration, a moment of outdoor respite during a busy day or a change of scenery when you want to get some fresh air.



Our demonstration areas include a CO native plant garden and the, now award winning (excuse me for tooting our own horn), Plant Select™ garden which features perennial beds, a rock garden and sidewalk pockets (like the tough, unirrigated strip of ground you might have in front of your house between the sidewalk and the curb). These spaces are a mix of Plant Select™ plants and others found in garden centers & nurseries.

Our gardens do not have irrigation systems but do receive supplemental water periodically during hot, dry spells. We regularly have loads of honeybees, native bees, butterflies and we even get hummingbirds visiting throughout the summer. Some of the Plant Select™ species featured in our gardens that are both water thrifty and attract pollinators are Wild Thing sage (*Salvia greggii*) and chocolate daisy (*Berlandiera lyrata*). Wild Thing is a woody perennial with bright pink flowers. It can be a little tender during harsh winters, but with an extra layer of mulch, ours have been going strong even in tough, clay soil. The chocolate daisy is so called because when the sun warms the yellow blooms, they truly smell like a milk chocolate bar! This cheery plant is tough as nails, needs very little water once established and blooms all summer. Other showstoppers include grasses that provide beautiful fall and winter interest once the flowers are done. Among these are UNDAUNTED® Ruby muhly. A bunch grass that grows 20-inches tall and 24-inches wide. In the autumn it has brilliant tiny red flowers (yes, grasses bloom!) that en masse look like delicate pink-red clouds. Standing Ovation little bluestem is another grass that is stunning in fall and winter. During the growing season it has upright, spiky blue-green leaves that transition to shades of red, orange and deep purple in the fall. We leave it standing all winter and seeing those warm colors kissed with frost and surrounded by snow can be stunning.

We are honored to have our gardens recognized and would love for you to stop by and visit them (9595 Nelson Rd, Longmont, 80501). Offices are still closed due to pandemic and employees are working remotely. You can also visit www.plantselect.org for more information on Plant Select™ plants, get design ideas and find other demonstration gardens in your area.

SUNFLOWERS

Fun Sunflowers Facts

- The botanical name for sunflowers is *Helianthus annuus* and almost all 70 species are native to North America. In Greek, “helios” means sun and “anthos” means flower.

- Heliotropism is the name of the behavior for sunflowers turning to face the sun from morning until nightfall.

- Sunflowers are mainly cultivated for food but they are also be found in bouquets, fabrics, crafts and soaps.

- These flowers come in three varieties; tall, dwarf and colored. They come in all warm colors; reds, oranges, yellows and scarlet with mixes of all!

- The tallest sunflower ever measured was 30’ and 1”! It is typical for large sunflowers reach around 12-15 feet.

- When a sunflowers head has completely bloomed and it’s been pollinated it becomes heavy with seeds, then it’s perfectly normal for the head to bend over and droop down. The reason for the drooping may be to let the seeds fall to the ground so they can nestle there and grow the following year.

- **Hyper-accumulators** Sunflowers are not only able to absorb lead, but other dangerous heavy metals such as arsenic, zinc, chromium, copper, and manganese.

- Millions of Sunflowers have been planted near the nuclear disaster sights of Chernobyl and Fukushima in an effort to soak up the radioactivity in the surrounding soils.

- The seeds also have what’s called an **allelopathic chemical** -- one that inhibits the growth of plants in the area. On one hand, this helps a garden because it can keep the weeds down. However, beans and potatoes are especially susceptible to this chemical and cannot be planted near sunflowers.

History of Sunflowers

Evidence suggests that sunflowers were cultivated approximately 3000 BC in present-day Arizona and New Mexico by Native American Indians. Sunflowers served multiple uses such as putting ground seeds into flour for cakes, eating the seeds as a snack, and using the oil for making bread. Sunflowers were also used when it came to building and for ceremonial, medical, and textile purposes.

Around 1500, sunflowers were taken to Europe by Spanish explorers where they were mainly ornamental, but were also developed for medicinal uses. Following this in the 18th century, sunflowers became a hugely popular cultivated plant and its oil started to be commercially manufactured by 1830.

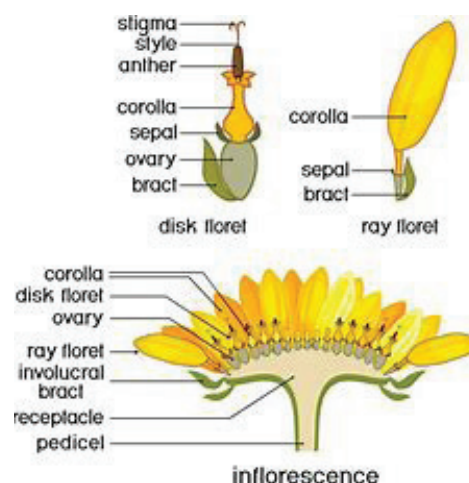
By the early 19th century, Russian farmers had grown more than 2 million acres of sunflowers, and had also identified one type for oil production, and one for direct human consumption. The Russian sunflower seed made its way into the United States by late in the 19th century, where the first commercial use was feed for poultry, and in 1930, Canada spearheaded the first official government sunflower breeding program.

Sunflower oil was in high demand throughout Canada and the U.S., resulting

in acreage spread and production and these lovely flowers were hybridized for disease resistance and additional oil enhancement. Further request for sunflower oil came from Europe as the Russians could no longer supply the growing demand, therefore increasing U.S. acreage to more than 5 million. Today however, Western European depends on its own production, despite still being a large consumer of sunflower oil.

Flower structure

Sunflowers are a member of the aster family. The large flower head is actually an inflorescence, or composite flower, made up of two kinds of tiny florets. The disc florets are located in the center of the composite flower, and the ray florets bear the outer ring of petal-like structures. Normally ray flowers produce seeds, but the ray of the sunflower is sterile and serves only to attract insects. They are “perfect” flowers, meaning that they have both male and female producing parts. To prevent inbreeding, the pollen producing structure (the anther) forms a tube around the style of the pistil.





Types of Sunflowers

Sunflowers provide some of the cheeriest blooms. They come in a wide range of heights and bloom sizes as well as colors. The giant flower head is actually two separate parts. The inside is the cluster of flowers, while the larger colored “petals” on the outside are actually protective leaves. The flowers in the center turn into seed when the plant is almost done for the season. Black oil sunflower seeds are the favorite for feeding wild birds and for making sunflower oil.

There are two kinds of sunflowers grown commercially: oil seed sunflowers and confection sunflowers.

Oil seed flowers are grown for oil production and bird seed. Sunflower oil is low in saturated fats and doesn't have a strong taste. It is growing in popularity due to its heart healthy reputation. Confection sunflowers produce seeds

that are large gray and black striped seeds that are sold for snacks. They are sold either in the shell, roasted or salted, or shelled for salads and baking. There are numerous varieties are used for confection seeds but primarily the Black Peredovic sunflower is grown for oil seed.

Extracting Oil From Sunflowers

The extraction of sunflower oil is done through exposing the seeds to extreme pressure. Before the extraction can occur, the seeds must undergo preparation. After the extraction has taken place, the oil can be refined further and then continues through various finishing processes.

PREPARATION Sunflower seeds raised for oilseed have all trace metal and extraneous material removed before continuing into the press. This includes removal of the hull and skin. The clean

seeds are then ground into meal that creates more surface area to extract oil from. Rollers and hammer mills are used to crush the meal to the correct consistency for the presses. The meal is heated to aid in the oil extraction. Any impurities remaining from the cleaning are removed prior to pressing.

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PRESSING - The seed meal moves into an expeller press to squeeze out the oil. The process is called cold-pressing. The meal undergoes increased pressure from the press as it moves through the machinery. After pressing, the meal has hexane added to it to chemically extract any remaining oil. Hexane is not used by every sunflower oil producer; smaller mills and natural oil producers skip the chemical extraction process.

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REFINING the oil from sunflower seeds can use either a natural or chemical method. Naturally refined oil uses citric acid and is cooked at 250 degrees F; chemical refining involves the use of phosphoric acid and raises the temperature to 500 degrees F. The refining process is used to reduce the smoke point of the oil and therefore lets the oil be cooked at higher temperatures. Sunflower oil can be refined twice to lengthen the shelf life up to four years. Not all sunflower oil is refined; unrefined sunflower oil has a shelf life of only one year. Refining the oil from sunflower seeds can



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FINISHING - The extracted oil is split into one of two finishing processes. Oil being processed for cooking is bleached with fuller's earth and activated carbon to absorb pigmented material. Oil being processed for refrigeration is rapidly chilled and filtered to remove remnant waxes to ensure the oil doesn't solidify. The oil is then placed into a vacuum and reheated at a range of 440 to 485 degrees F. Steam is then passed over the oil to deodorize it removing any bad taste or smell left from the distillation process.

The finished oil is then measured using an IV into plastic or glass bottles. The extracted oil is then split into one of two finishing processes. Oil being processed for refrigeration is rapidly chilled and filtered to remove remnant waxes to ensure the oil doesn't solidify.

BYPRODUCT - The seed meal left behind by the extraction process is considered a byproduct. This meal is pressed into seed cake for animal feed and fertilizer.

Insects Friends & Foes

Not many pests bother the sunflower and those that do only wreak havoc in large numbers. The most common sunflower pests include the following:

- **Sunflower Head-clipping Weevil** - This is a black weevil about 1.0 cm (1/3 inches) long with a long, curved snout and relatively soft wing covers. Diagnosis is most easily made by the distinctive form of the plant damage. Adults girdle flower peduncles and leaf petioles leaving partially severed flowers or leaves hanging on the plant. When severed flower heads are opened, they often reveal mating aggregations of adult weevils covered in pollen.

- **Sunflower Beetles** - Sunflower beetles typically feed on the leaf foliage and in small numbers or older plants may seldom hurt the plants. However, on younger sunflower plants, the first true leaves can be severely damaged or completely consumed.

- **Cutworms** - can also damage the leaves of young sunflowers, leaving notches or holes. Wilting may also occur. Again, these are usually not a major issue unless there is a heavy infestation.

- **Sunflower Borers** - Sunflower borers and stem maggots burrow into the stems of sunflower plants to feed. This can quickly kill the vegetation and other parts of sunflower plants, especially in large numbers.

- **Sunflower Moths** - Sunflower moths are one of the most destructive pests to sunflowers, laying their eggs within the flowers. Once the eggs hatch, the larvae move into the flower heads to feed, ultimately destroying the plants.

- **Grasshoppers** - Grasshoppers and various caterpillars also enjoy nibbling on sunflower foliage. While rarely a major problem, large numbers can quickly defoliate plants.

While this insect does not damage the valuable flower, it does have its downside. The **Jagged Ambush Bug**, that thrives on the pollinators that frequent sunflowers. Because of its small size, colorful camouflage, potent poison and surprise tactics, the Jagged Ambush Bug is able to catch and eat insects that are much larger than it is, such as bumblebees, hornets and wasps. This list also includes honeybees, which does not make Jagged Ambush Bugs popular with beekeepers.

Sunflower Problems with Disease

Although sunflowers can be affected by some disease problems, rarely is this an issue, as these plants are typically quite hardy. Various leaf spot diseases may cause surface spots or yellow patches. Rust, verticillium wilt, and powdery mildew can also affect sunflower plants on occasion.

However, the most common threat to these plants is Sclerotinia stem rot, also known as white mold. This fungus can cause sudden wilting of leaves, stem cankers and root or head rot. Crop rotation can reduce the likelihood of this disease as well as proper watering practices.

<https://entomology.k-state.edu/extension/insect-information/crop-pests/sunflowers>
<https://aggie-horticulture.tamu.edu/>
<https://www.gardeningknowhow.com/ornamental/flowers/sunflower/sunflower-problems.html>
<https://www.gardeningknowhow.com/ornamental/flowers/sunflower/black-oil-sunflower-seeds.htm>
National Sunflower Association & The Flower Expert.
Webhome.auburn.edu
<https://www.gardenguides.com>

