Sunflowers: A Versatile Native Crop

Sunflowers are an amazingly versatile crop with a fascinating history. They have been used as a crop in the Midwest dating back a thousand years ago to the time of the Cahokia mound builders in the St. Louis area. The earliest human use of sunflowers is believed to have been four thousand or more years ago. Remarkably, out of all the major field crops grown in the Midwest today, sunflowers are the only one native to the United States.

When Europeans first came to the U.S., they viewed sunflower as a pretty ornamental, not really considering it as a food crop, despite its history of food use by Native Americans. While it was being largely ignored in the U.S., it eventually became developed as a modern food crop almost as a fluke of history. In Russia, where most oily foods were banned on Lent by the Orthodox Church in the 1800s, sunflower was one of the only options not on the banned list, and thus became of interest to the Russian people as an oilseed. Russian agriculturalists worked throughout the 1800s to develop the crop, greatly increasing its oil content and making it more suited to modern agriculture. Only after the Russians had made great progress with sunflower breeding and development did it finally re-emerge as a crop in the U.S.

The first known commercial processing of sunflowers in the U.S. was actually in Missouri in 1926. Sunflower in the U.S. took off as a crop in the 1970s due to demand for the oil from Europe. In recent decades, sunflower acreage in the U.S. has varied but averaged roughly two million acres per year.

The versatility of sunflowers is reflected in the fact that it can grow on a wide range of soils in many latitudes and are tolerant of dry conditions. Indeed, tens of millions of acres of sunflowers are grown worldwide. In the U.S., the leading state for sunflower acreage is North Dakota, followed by South Dakota. In Missouri, sunflower has a wide range of planting dates, any time from early April to July. It's also versatile in the many different uses for the seeds, flowers, and plant, as described below.

Many people notice wild sunflowers blooming along Missouri roadsides in late summer. While members of the same plant genus, those roadside plants are different species, generally wild perennials, as opposed to the domesticated annual sunflower crop (*Helianthus annuus*). A myth persists that planting a field of commercial sunflowers can lead to the wild sunflowers seen along roads or occasionally popping up as weeds in no-till fields. That is not the case at all – it would be like a cocker spaniel giving birth to a wolf – the genetics just don't work that way. Farmers who have grown sunflowers in the region feel they pose no threat as a weed, particularly since most seeds that fall to the ground are quickly devoured by birds or other wildlife.

Figure 1. Sunflower. (Credit: Rob Myers)

As a beautiful, vigorous native crop, sunflowers help pollinators, beneficial insects, song birds, and other wildlife, and improve soil with a deep taproot. It's a great rotation crop and has the potential to add income for specialty markets (see more on that below). A field of sunflowers in bloom can lift up the human spirit, which is why you find everything from calendars to paintings to hats and clothing depicting the brilliant golden flowers.

Sunflowers are certainly worthy of consideration for any farm or garden, even if planted in just a small area to brighten up a summer day. When growing sunflowers for commercial use, a careful plan for marketing is in order (see the marketing section for more details).

Uses of sunflower

Vegetable oil

The largest market of sunflowers in the U.S. and worldwide is for vegetable oil production. Sunflower seeds are high in oil, typically 40–45 percent by weight. The oil

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is considered a superior oil for cooking purposes, whether in commercial kitchens or for home use. Modern sunflower varieties have been developed through conventional plant breeding to be relatively high in oleic acid, which is a form of fatty acid that makes the oils very stable for frying applications, such as making potato chips. It's also a relatively healthy oil because it is fairly low in saturated fats. About 70–80 percent of the sunflowers grown in the U.S. each year are the oilseed type. After the vegetable oil is squeezed out of the seeds, the remaining material (seed meal) is normally fed to livestock.

Birdseed

Many people are surprised to find out that several hundred thousand acres of sunflowers are grown each year for birdseed, though this will not surprise people who repeatedly buy 50 pound sunflower bags for their birds. In the U.S., the birdseed business is a multi-billion dollar industry. Almost all the sunflowers sold for birdseed are the black oilseed type. Occasionally, some confectionary (white or gray striped) sunflower seeds will be put into a birdseed mix, but they're considered inferior for feeding birds compared to the thinner-hulled smaller black oilseeds, which are easier for birds to eat. In Missouri, a large amount of sunflower is brought into the state for packaging into birdseed; this market could be more fully met by local production.

Confectionary and food use

Make a trip to the grocery store and you're liable to find sunflower seeds in products on many of the store aisles. Large striped confectionary seeds have been sold as snack foods for many years, typically salted and in the hull. Sunflower seeds found in breads, crackers, and many other food products are usually dehulled first; they may be either oilseed or confectionary type sunflowers.

Cover crop use

Sunflowers are starting to be used as part of multi-species cover crop mixes planted in mid-summer for soil improvement. In Missouri, they are most likely to be used for cover crop purposes as part of a multi-way blend of cover crops planted after wheat harvest. They not only add a little color to the cover crop patch but also serve to host pollinators and other beneficial insects. Conservationists like the fact cover crop sunflowers feed some songbirds, and deep sunflower roots are great for improving the soil when used in a cover crop mix. However, they will winter kill once fall temperatures get down to about 28 degrees F, so they don't stay green as long in the fall as some other cover crop species like cereal rye or oats.

Wildlife use

Conservationists have long promoted sunflowers for wildlife planting. Deer do not particularly desire the leaves but will eat the seed heads. Quail may eat seeds that are knocked to the ground by other birds, and the seed heads will attract some species of songbirds, with goldfinches and mourning doves the most common visitors to sunflower fields in Missouri. Occasionally, flocks of blackbirds may feed in part of a maturing field in the fall.

Ornamental use

Anyone who buys garden seeds has probably been tempted to try planting a few sunflower seeds, with Russian Mammoth (a true giant that can get over 10 feet tall) being a traditional variety dating back to the late 1800s. Newer sunflower varieties that have been bred for cut flower use or other ornamental characteristics have become much more widely available and add to the diversity of sunflower types that can be planted.

Place of sunflowers in the crop rotation

Sunflowers work well in a rotation with other common Midwestern crops, and by diversifying the overall crop rotation, contribute to improved soil health and help with weed and pest control. In Missouri, they may be grown in a rotation with corn and soybeans, typically ahead of corn in the rotation, or they may be double-cropped after wheat. While the majority of sunflowers in Missouri have been grown as a "full-season" crop planted in April and May, many farmers have also had success planting sunflowers right after winter wheat harvest. Some farmers report that sunflowers tend to "mellow" the soil due to their extensive rooting system, but this has not been well-studied by researchers. It should be noted that sunflowers do not leave as much residue as corn, so planting a cover crop after sunflower harvest is recommended to help with erosion control as well as overall soil health. It is best to not plant sunflowers more than once every three years in a given field to help minimize any potential diseases or other pest problems.

Double-cropping

Sunflowers have some advantages over soybeans for double-cropping after wheat. They are somewhat faster maturing than soybeans and also more tolerant of frost in the fall, so can be double-crop planted as much as 10-14 days later than soybeans. Their frost tolerance versus soybeans is not large, a difference of being killed at about 28 degrees F for sunflowers, versus beans being killed at 30–31 degrees F. Sunflowers' extra tolerance to light frosts may mean an extra week or two of growth in the fall compared to soybeans. Also, sunflowers are more tolerant of dry weather than soybeans once they are established, which helps given that double-crops typically experience hot, dry weather in late summer. The advantage for double-crop soybeans over sunflowers is that soybeans tend to emerge a bit better when drilled as a double-crop than sunflowers, and of course soybeans are much easier to sell to a local grain elevator.

Varieties

Commercial varieties

There are dozens of varieties of sunflowers available for commercial, large-scale planting. All of them are hybrids, meaning that new seeds of that hybrid must be purchased each year (you can't save the seed for replanting). The majority of commercial hybrids are oilseed types, although there are also a fair number of confectionary varieties available. Commercial hybrids are sold under several trade names or company names including Croplan, Mycogen, Nuseed, Pioneer, Proseed, SunOpta, Syngenta, Thunder, and Triumph.

Within the oilseed types, the majority have been bred to have mid-levels of oleic acid (called NuSun varieties), while a few are even higher in the oleic fraction and are simply referred to as high-oleic types (generally for industrial or particular food market uses). Commercial varieties differ in the time it takes to mature and in their disease resistance, height and other characteristics. Some semi-dwarf "short stature" types are available that are about 3 to 4 feet tall instead of the more common 5 to 6 feet variety height. Through conventional breeding, there are also herbicide-resistant lines of sunflowers such as Clearfield and ExpressSun varieties that can be used with particular weed killers (more on this in the weed control section below). It's worth noting that to date, there are no GMO varieties of sunflowers; industry leaders have decided to avoid going that route with sunflower variety development, and have relied strictly on traditional plant breeding methods.

When selecting a commercial variety to grow, it's well worth the time to research variety test results that are reported on yield and other characteristics such as maturity or disease resistance. Some universities do detailed variety testing of sunflowers, with results reported annually. Information on variety performance can be found by doing an internet search using a phrase like "sunflower variety trial" and the name of a state, such as Kansas or North Dakota.

Specialty varieties

While commercial oilseed and confectionary varieties are by far the most widely sold sunflowers for farm use, there are also tens of thousands of acres planted for conservation or wildlife using an old heirloom variety called Peredovik. This variety was originally developed in Russia decades ago and licensed in the 1960s to the Canadian government for use in their efforts to expand sunflower production. It was displaced from commercial use starting in the 1970s by higher-yielding hybrid types of sunflowers, but remains popular for wildlife planting. Its main attributes for wildlife use are that the seed is smaller (possibly of value to some birds) and it is open-pollinated, which means that seed can be collected and replanted, or allowed to reseed itself (though this is unlikely because the seeds get eaten). In the author's opinion, most commercial oilseed types of sunflower would probably be just as well-suited for wildlife use compared to Peredovik – certainly the modern hybrids would produce more seed per acre and be more robust, vigorous plants.

On a much smaller scale, the ornamental sunflower market has really expanded in the last two decades. Garden seed catalogs now carry many varieties of ornamental sunflowers. Besides the common gold colors, there are now orange, red, and white-colored varieties along with various shades of yellow. Some ornamentals have many flowering heads per plant, others have unique petal formations. The newest class of ornamental sunflowers have been developed to be pollen-free, so that they become a more well-mannered house guest when placed on display, no longer shedding golden pollen dust all over the place. Just keep in mind these pollen-free types don't produce any seed either, much to the disappointment of your neighborhood birds.

Planting

Site selection and prep

Sunflowers can be planted on a range of soil types, from coarse-textured to fine-textured. They will tolerate heavy soils but are at their competitive best, compared to other row crops, in coarser, more moisture-limited soils. Sunflowers are particularly effective at rooting deeper than many crops to access extra supplies of moisture. They can be planted no-till, but if tillage is to be done, a good seedbed should be prepared. The sunflower's large seed, surrounded by a hull, can be prone to drying out or not dropping to the bottom of the seed furrow if soil conditions are too cloddy or rough. Getting good furrow closure is particularly important for no-till sunflowers. If planting no-till, consideration may be needed for management of insects that could attack the emerging seedling.

Seeding dates

Part of the versatility of sunflowers is that they can be planted as early as corn or spring cereals, or fairly late, even later than soybeans. For Missouri, this means they can be planted anywhere from early April to late July, except in the more northern parts of the state where the latest viable date for planting is mid-July. The advantage to planting early is reducing possible yield loss to bird damage; flocks of blackbirds are more likely late in the season, so an early harvest can help avoid that. However, blackbird damage is generally minor in Missouri in most locations. Planting in May typically gives the most consistent results with getting a good stand of sunflowers. Later plantings are usually done as a double-crop after wheat. Sunflowers are competitive to soybeans as a double-crop after wheat, and, as described in the crop rotation section above, can be planted a little later and are somewhat more frost tolerant than soybeans.

Seeding rate

The best approach to choosing a seeding rate is to use a target plant population rather than seeding by number of pounds per acre. Sunflower seed size can vary tremendously, so simply going by pounds per acre can lead to very different numbers of plants per acre. For average or below-average soils, a seeding rate in the 20,000–24,000 plants per acre range is appropriate. A slightly higher rate is better on high-yielding soils, in the 22,000–26,000 plants per acre range. This number of seeds per acre equates roughly to a few pounds per acre, depending on the seed size of the particular variety and seed lot.

Row spacing

Most farmers with a row crop planter will plant sunflowers on a 30-inch row spacing, but 15-inch rows can be successfully done with split-row planters. Using a grain drill for sunflowers is viable if no row planter is available, but getting a good uniform stand can be more challenging with a drill than a row crop planter. There is no significant yield advantage to planting sunflowers in narrow drilled rows over 15- to 30-inch rows.

Seeding depth

Sunflower seedlings can struggle to emerge from compacted soils or when planted too deep in cool wet soils. As a rough rule of thumb, planting sunflowers at about the same depth that soybeans would be planted in a particular soil is a good starting point. On coarse-textured soils, or when the seed bed is moderately moist with no rain forecast, deeper planting of 1.5 inches or more may be in order. On heavier soils or when rain is imminent, a shallower seeding of an inch or so is often the best strategy.

Fertility management and pH

The best sunflower yields are obtained when adequate nitrogen fertility is available. Sunflowers are moderately high in their nitrogen demand, similar to sorghum but not as high as corn. On Missouri soils with average or below-average organic matter, generally 80–100 pounds of nitrogen fertilizer will be needed on full season sunflowers. Nitrogen management for double-crop sunflowers is a bit more complex, as it depends on how much spring nitrogen was put on the wheat and how the wheat residue is being managed. A typical wheat field might have 80–100 pounds of nitrogen spring applied; if the sunflowers are planted no-till, and rainfall has not been so excessive as to leach most of the remaining nitrogen, then 60–80 pounds of nitrogen applied to the sunflowers may be adequate. Phosphorous (P) and potassium (K) fertilizer should be applied according to soil test results. As a double-crop, it's possible that sunflowers can be grown without extra P and K, especially if some extra P and K were applied in the fall to account for both the wheat and the sunflower double-crop.

Sunflowers are similar to most other annual row crops in that they do best when soil pH is neither too low nor too high; at the extremes of soil acidity or alkalinity, various nutrients become limiting factors to crop growth. Generally, sunflower is tolerant of soil pH ranging from 5.0 to 8.0. If soils tend toward excessive acidity, application of lime to the soil can improve sunflower growth.

Using sunflowers after a cover crop

For those wanting to grow sunflowers organically, or otherwise reduce fertilizer expenses, it is possible to obtain adequate fertility from cover crops, especially in combination with manure applications. Because sunflowers can be planted relatively late, legume cover crops such as hairy vetch, Austrian winter peas, or crimson clover can be allowed to grow until late May and then terminated ahead of a sunflower planting around June 1. A legume cover crop allowed to grow that long may contribute 100 pounds of nitrogen or more to the sunflower crop. Although it's best to plant the legume covers in the fall, possibly with oats to help improve erosion control, it's possible to seed some legume cover crops (especially peas or crimson clover) very early in the spring, such as late March, and still get good cover crop growth before planting sunflowers in early June.

For organic systems, use of a cover crop roller-crimper can be effective in helping terminate the cover crop and create a mulch to help with weed control. Cereal rye mixed with a legume can help improve the mulching layer and weed control, but will reduce the amount of nitrogen fixed and also tie up some of the nitrogen as the rye breaks down. Thus, for a straight organic system with no manure, use of oats with peas, vetch, or crimson clover is recommended. If no roller crimper is available, it is possible to kill peas or clover after flowering has started by mowing (or tillage). Hairy vetch is more challenging to kill with mowing; the key is to mow after flowering of the vetch is well along.

Pest management

Weeds

Sunflowers are a fast growing, vigorous crop, thus are relatively competitive with most weeds. While this makes it possible to grow sunflowers organically (assuming some mechanical weed control, hand weeding, or an excellent mulch bed of cover crop residue), most farmers use herbicides when growing sunflowers commercially. Several herbicides registered for use with sunflowers, including pre-plant or pre-emerge products with residual control such as Spartan, Treflan, Prowl, Eptan, Sonalan, or Dual Magnum. Post-emerge products for grass control include Select, Assure and Poast. For post-emerge broadleaf control, the best approach is either cultivation or use of an herbicide-resistant variety such as Clearfield or ExpressSun (both are non-GMO, developed through conventional plant breeding). Clearfield varieties can be sprayed with Beyond herbicide, which has both foliar and residual activity on weeds. Likewise, ExpressSun varieties can be sprayed with Express SG herbicide for broadleaf

weed control. As always, follow herbicide label instructions carefully.

For no-till sunflower production, a typical approach is either to use herbicide-resistant Clearfield or ExpressSun varieties with the herbicides outlined above, or to use a Spartan/Prowl tank mix with Roundup (for burndown) prior to planting; some Spartan formulations include Roundup or another secondary herbicide. If tilling, Spartan can still be used, or one of the herbicides that requires incorporation such as Treflan, Eptam, Sonalan, or Dual Magnum.

Any sunflower seeds that "volunteer" the following season are easily controlled by using tillage or herbicides in corn, soybean, and small grain fields. Commercial hybrid sunflowers are extremely unlikely to become a weed issue. In fact, most sunflower seed left on the ground after harvest is likely to be eaten by birds and rodents before the next growing season. The wild sunflowers seen growing in Midwest roadsides are not there because of commercial sunflower fields, but rather are native wild type sunflowers, usually perennials, that are different species than what is grown on farms. These roadside sunflowers may show up more than in years past due to the simple fact that some roadsides are not mowed as often as they used to be.

Diseases

Generally, commercial fields of sunflowers in Missouri do not have major disease issues. The most likely exception is in wet, saturated soil conditions, such as might be found in a creek bottom or in a river bottom with a high soil water table. Under such wet soil conditions, various root rots and stalk rots can be very harmful to the crop. The best strategy is to avoid bottom ground areas that have a history of being wet in the summer.

Insects

A number of insects will munch on sunflower leaves and some on the seeds. Fortunately, in Missouri they rarely reach the level of being an economic problem. While grasshoppers and caterpillars are noticeable leaf feeders, it would be unusual to need to spray for them. The primary important insect pest to watch for is sunflower head moth, which lays eggs on the backside of the sunflower heads. The eggs will hatch out larvae that then feed inside the sunflower seed head; once the larvae are inside the seed head, they are almost impossible to kill. Therefore, treatment for the sunflower head moth needs to be at a time that controls the moth and prevents egg laying. Regular scouting of fields starting when the first yellow petals appear is necessary to determine if spraying is needed. Kansas State University has a good detailed guide on sunflower moth available online at ***https://www.bookstore.ksre.ksu.edu/pubs/MF3108.pdf.***

Sunflower head clipper weevils are a pest that can also show up occasionally. They damage the stem below the head, causing the head to die prematurely and often fall off.

In a home garden setting, insecticides are not normally needed with sunflowers. If a severe pest problem occurs, such as head clipper weevils, either hand picking the insects can be done (dunk them in soapy water) or use a standard garden insect control product (such as products that include the active ingredient carbaryl).

Birds

As mentioned earlier in this guide, blackbirds and potentially other flocking birds can be a serious pest in sunflower fields. In the Northern Plains, where sunflowers are most extensively grown and where there are major blackbird populations, numerous scare tactics are used such as flying drones through the fields or firing off propane cannons on the edge of fields (the cannons are not recommended for use by your house or your neighbors). In Missouri, blackbirds can be an occasional problem but the following strategies will help minimize it. First of all, if bird damage is a concern, the best strategy is to plant the sunflowers early, either April or early May, so that they can be harvested before the birds start congregating in flocks later in the fall. Secondly, planting a larger field can to some extent reduce the percentage of loss. For example, a small field of 10-20 acres may have major damage from a flock of hungry blackbirds, whereas a large field of 100 or more acres will have proportionally less loss as a percentage of the total (in most cases, but not where flocks are huge). Third, careful site selection that keeps sunflower fields away from wetlands, ponds, or tree lines attractive to birds may help reduce some bird damage. Although scare tactics can be used, they are best employed before the birds start feeding on a field; once they have started eating, they will often quickly return after being scared away. For very small fields where sunflower heads are grown to maturity and hand cut for sale as "natural birdfeeders," bird netting may be bought and spread over the seed heads before maturity. At least two people will be required to spread the netting. It should be noted that cost of netting is prohibitive in larger fields.

Harvesting

When the back of the sunflower seed head turns brown, that's a sign it is time to harvest. Combine heads specifically designed for sunflowers are available, but regular "all crop" platform heads used for crops such as wheat and soybeans can be used with sunflowers. However, a small amount of harvest seed loss can be expected with an unmodified platform head. Some farmers harvesting a lot of sunflowers will add a sunflower "kit," to a platform grain head, with row dividers and "catch pans" to collect seed heads that might otherwise fall to the ground in front of the header. Some corn heads can also be used with sunflowers, although minor modifications may be needed. Besides dedicated sunflower combine heads, the next best option is to buy a used soybean row head for harvesting sunflowers.

Typical combine settings are:

- Cylinder speed: 250 to 400 rpm
- Upper sieve: ½ to ⅝ inch
- Lower sieve: ⅜ inch
- Concave: normally wide open, but close it down somewhat if the grain is moist
- Air speed: keep to a minimum to avoid blowing the seed out of the combine

A special note with harvesting sunflowers is that a fine dust is often released from the sunflower heads, which on rare occasions has started combine fires. For this reason, it is very important to keep combine air intakes cleaned periodically and pay attention to dust management when harvesting sunflowers.

Storage, test weight, and transportation

As a high oil crop, some care needs to be taken with handling sunflowers. For example, black oilseed sunflowers should not be left sitting on a truck or wagon in hot sunlight for a prolonged period. Storage moisture should be at 10% or below for long term storage. When drying sunflower seeds in a bin with forced air, it's best to avoid using supplemental heat to reduce over-drying and the chance of a bin fire. Regular air is generally adequate to finish drying seed with a bin drier. Keep in mind that sunflower dust is more combustible than most other crops.

Transportation of sunflower is more expensive than other crops because of the low weight per bushel. A minimum test weight of 25 pounds per bushel is the U.S. grain standard for sunflowers, although a somewhat higher weight is typical from most fields. Some sunflower buyers will require a particular test weight to pay full price (e.g., 28 pounds per bushel). The low density of sunflower seeds means that a full semi-truck hauling sunflowers carries considerably less seed by weight compared to most commodity grains, sometimes only half as much weight per truck load. Long-haul truckers may use high-sided trailers to carry more sunflowers because of their low weight.

Markets, economics and crop insurance

Farmers considering commercial sunflower production should identify a market ***before*** planting the crop. In Missouri, the largest market for sunflowers is the birdseed market. Unfortunately, while there are many people buying birdseed from stores, there are only a few packagers buying wholesale sunflowers for birdseed in Missouri. Farmers wishing to sell sunflowers for birdseed should focus on growing commercial oilseed sunflower hybrids. Some farmers in Missouri sell sunflower birdseed directly to consumers, either right off the farm or through local retail outlets. This can be a good option if someone with seed cleaning and bagging equipment can help prepare the sunflower seed for sale. The cleaner the seed, the better it will sell. Others sell sunflowers on a wholesale basis to a birdseed packager, usually on a contract basis arranged before harvest. Just keep in mind that trucking distance to the processor can eat into profits in a hurry.

Current prices for oilseed sunflowers can be found on the National Sunflower Association website under their daily market news (see link in the more information section). Prices listed are usually for delivery at selected locations in North Dakota and western Kansas. Sometimes Missouri growers are able to get a slightly higher price at a birdseed packager in Missouri, as the Missouri-based packager does not have to pay shipping costs from the Dakotas or western Kansas. Sunflower prices generally track the broad ups and downs of soybean prices since both compete in the oilseed market.

Although crop insurance is available for sunflowers in some areas of the U.S., it is not currently available in Missouri except through an approach called "written agreement." Growers are encouraged to talk to their crop insurance agent about the process for obtaining such an agreement.

Small scale markets

Small acreage farmers can explore developing market channels for whole heads of sunflowers, either cut fresh for the flower market or dried for the birdseed market. For the birdseed market, an oilseed variety should be grown. The size of the head can be managed by the planting density; for larger seed heads, space the seeds more widely at planting. A place should be designated, such as a garage or barn, to dry and store the sunflower heads after they are cut by hand with pruning shears. Nice-sized sunflower seed heads that are undamaged can be sold in small volumes for "natural" bird feeders that people can hang on a fence or tack up with a nail on a garden shed wall. The cut flower market is another option small acreage growers can explore with sunflowers. Challenges include dealing with insects on the flowers and needing to transport the fresh cut flowers to market quickly or keep in cool storage.

Special notes about sunflowers

Of all the field crops that can be grown in the Midwest, sunflowers are arguably the most iconic in terms of their wide use in art and as a decorative motif, on everything from calendars and wallpaper to towels, dishes, and clothing. Farmers who have grown sunflowers in Missouri often comment on how all the neighbors are suddenly giving them kudos for brightening up the neighborhood and how they often see people taking selfies or other photos on the road by their sunflower field when it's blooming. Of course, sunflowers are popular not only with artists, photographers, and home decorators, but also with home gardeners. Even a small sunny corner of the yard can play host to a few Russian mammoth or other ornamental sunflowers. Kids seem to really enjoy growing sunflowers as well, even if the only option is a pot on a backyard deck. Some of the popular garden seed catalogs are a good place to check out many of the diverse types of sunflowers available for home gardens or flower beds (e.g., Johnny's

Selected Seeds, Burpees, Park Seed or heirloom varieties from Missouri-based Baker Creek Seeds).

More information

The National Sunflower Association, a nonprofit farmer organization, has a wide range of sunflower marketing and production information on their website at ***http://www.sunflowernsa.com***. They also publish a monthly sunflower grower magazine that is available to read free online at ***https://www.sunflowernsa.com/magazine***.

A detailed grower manual on sunflowers published cooperatively by several universities is the "High Plains Sunflower Production Handbook." It is available online at ***https://www.bookstore.ksre.ksu.edu/pubs/mf2384.pdf***.

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