



## Sunflower Cut Flower Production in Utah

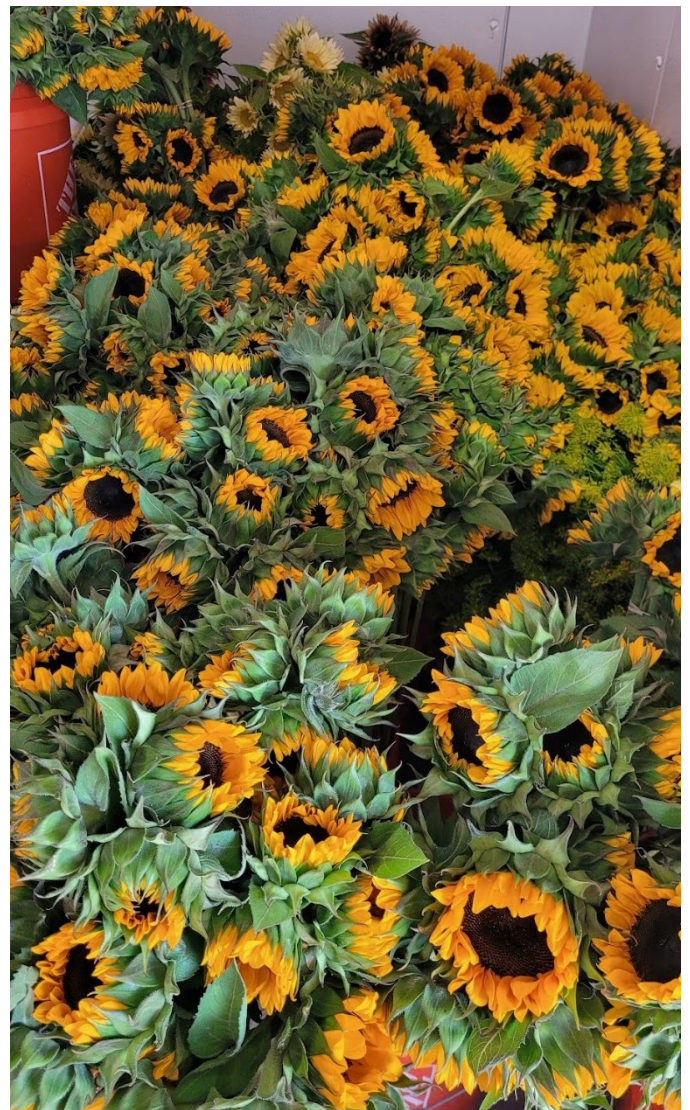
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### Overview

A good rule of thumb for growing cut flowers in Utah is, if you see it growing along the roadside as a weed, find its cousin, cultivate it, and sell it. Indeed, sunflowers are an excellent low-maintenance, high-return cut flower for Utah's climate. The cultivars are categorized as either those that produce multiple, branching stems or a single stem, which are most common for cut flowers. New cultivars are released often, and blooms range in color from traditional orange to white petals with dark centers, burgundy, lemon yellow, and many more. This crop has lower water requirements than many other cut flowers and should be grown in full sun, making it an excellent, low-input crop in Utah. Sunflowers thrive in the field, and high tunnels may also be used for season extension. On-farm trials showed that seedlings survive below freezing, with temperatures as low as 28 °F before frost damage occurred, making sunflowers a great candidate for Utah's unpredictable springs.

### Single Stem and Branching Types

The most common species for cut flower production is *Helianthus annuus*, with single-stem cultivars (Figure 1) being the most popular for markets compared to branching types. See Table 1 for a comparison of attributes between single versus branching types, as well as a short list of common cultivars. Any of the Procut™ series have been highly successful on flower farms in Utah. There has been more limited experience with branching types for cut flower production, which are less popular to grow because of the disadvantages related to stem length and pollen-shedding.



**Figure 1.** Sunflower cut flowers harvested, bunched, stored in a cooler, and ready for market.

**Table 1.** Common sunflower cultivars for cut flowers, and advantages and disadvantages by stem type.

Stem type	Example cultivars	Advantages	Disadvantages
Single	<ul style="list-style-type: none"> <li>• Procut Orange™</li> <li>• Procut White Lite™</li> <li>• Procut White Nite™</li> <li>• Sunrich™ Summer Provence</li> </ul>	<ul style="list-style-type: none"> <li>• Longer stems (approximately 24 to 48 inches).</li> <li>• Ability to manipulate bloom size by spacing.</li> <li>• Pollenless varieties.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires season-long succession planting for continuous blooms.</li> <li>• One bloom per plant.</li> </ul>
Branching	<ul style="list-style-type: none"> <li>• Gold Rush</li> <li>• Chocolate</li> <li>• Strawberry Blonde</li> </ul>	<ul style="list-style-type: none"> <li>• More blooms per plant (approximately 3 to 8 stems per plant).</li> <li>• More color options available.</li> </ul>	<ul style="list-style-type: none"> <li>• Shorter stem length (approximately 10 to 18 inches).</li> <li>• Sheds pollen, which leads to shorter vase life.</li> </ul>

Blooms are typically one single layer of petals around a central disk. Disk colors vary between chocolate, soft yellow, and gold. Petal colors range from orange, soft yellow, bright yellow, peach, burgundy, and lemon-colored. When considering which cultivars to grow, consider bloom timing relative to market color preferences, stem length, regional adaptability, and scheduling staggered sow dates.

## Site Preparation

Sunflowers are well-suited for direct seeding (preferred) or transplanting into weed barrier fabric. Sunflowers require full sun and well-drained soil for optimum growth. Once a site has been selected, conduct a routine soil test to determine soil nutrient needs. Soil testing is particularly important when planting in new locations and should be repeated every 2 years. The [Utah State University \(USU\) Analytical Laboratories \(USUAL\)](#) performs soil tests, with pricing and sampling instructions available on their website. See the “Fertilizer” section for general nitrogen recommendations. Tilling in organic matter (i.e., straw, compost, dried grass clippings, etc.) will increase organic matter and can improve drainage in the soil over time. See USU’s [“Sustainable Manure and Compost Application: Garden and Micro Farm Guidelines”](#) for more options and considerations.

## Germination

Direct seeding is recommended, as sunflowers are sensitive to root disturbance, though plants can be started indoors and transplanted.

### Direct Sowing

Directly sow into a prepared seedbed in the spring after the soil temperatures reach at least 45 °F. To sow by

hand, scatter seeds evenly on the soil surface, then rake lightly to cover them. Seeds can also be placed in shallow furrows or drill lines set ½-inch deep, spaced 3.5 to 6 inches apart, and covered lightly with soil; water frequently until roots develop.

Thinning can manipulate bloom size, which is determined by the plant spacing. A tight spacing of 2 to 4 inches between plants can yield bloom diameters of 2 to 3 inches (measured from the tip of the outside petal on one end to the tip of the outside petal directly across). The ideal spacing of 4 to 6 inches between plants within a row yields larger blooms, ranging 4 to 5 inches in diameter.

### Succession Planting

Single-stem sunflowers reach maturity in 50 to 95 days, depending on the cultivar. To ensure a steady, continuous stem harvest, succession-sow every 1 to 3 weeks. Branching types have a longer harvest window, and therefore require fewer succession plantings, typically every 2 to 3 weeks. The following direct-sow schedule has been successful for single-stem cultivars in northern Utah:

- First planting date: 7 to 14 days before the last frost in the spring.
- Last planting date: 7 to 14 weeks before the predicted first hard frost in the fall.

### Transplanting

Sow seeds indoors 2 to 3 weeks before transplanting out. Sow at least two seeds per cell in a 50- or 72-cell flat using high-quality peat/perlite soilless media or preferred seedling mix. Bottom water the soil until seedlings emerge. This occurs in 7 to 14 days at 70 °F.

Harden off seedlings prior to transplanting. Transplant after the danger of [freezing](#) has passed. Minimize root disturbance during transplanting by avoiding handling or breaking the root ball before placing it in the soil. Space plants 4 to 6 inches apart in a row to encourage larger blooms at maturity.

### Spacing, Pinching, and Trellising

The recommended in-row spacing is 4 to 6 inches apart for a single-stem type, and 18 to 24 inches for a branching type. Between row spacing should be 12 to 18 inches, which optimizes production and eases harvest. Thinning may be required to achieve spacing requirements. Plants without adequate space will produce poor-quality blooms with weak stems. Higher plant populations in close spacing also increase the risk of lodging, especially in windy regions.

Do not pinch single-stem sunflowers, as this could result in poor-quality blooms or none at all. Branching varieties may benefit from pinching to encourage branching. Pinch just above the second set of true leaves. Sunflowers typically mature to heights ranging from 2 to 10 feet tall. Trellises are not needed with this crop.

### Nutrient Management

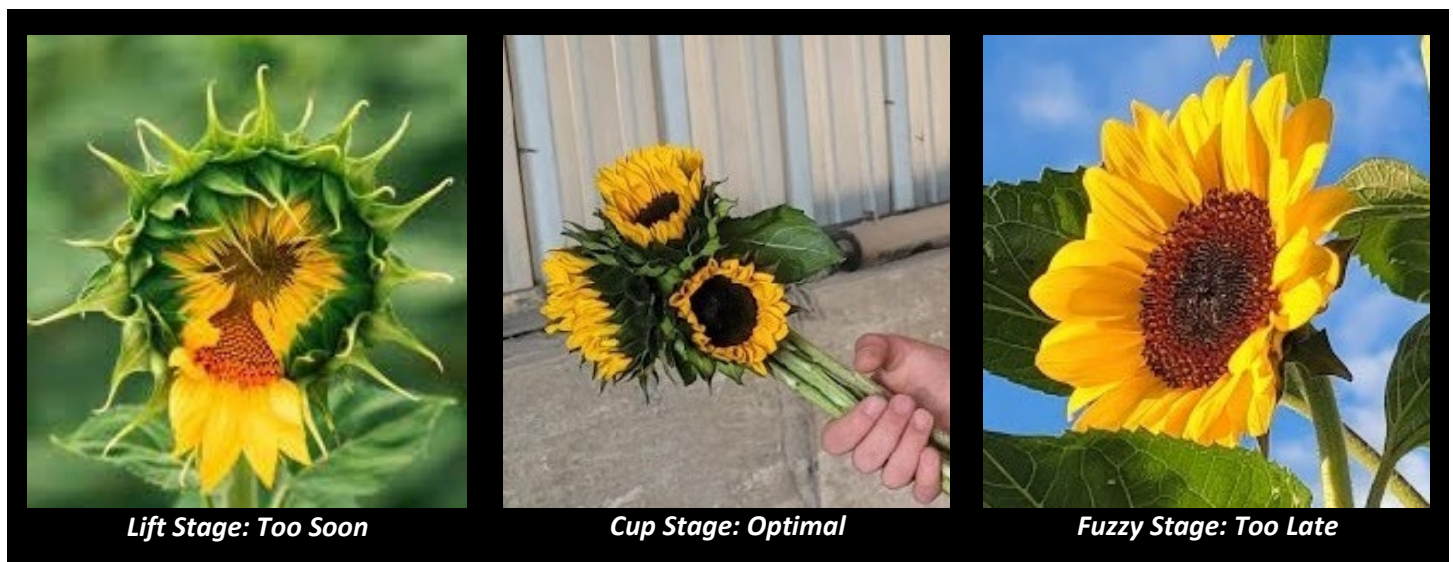
Sunflowers have low to moderate nutrient requirements. A general recommendation is at least 0.2 pounds of nitrogen per 100 square feet. For example, at least 0.4 pounds (about 2/3 cup) of conventional urea

fertilizer (46-0-0) or 1 ¾ pounds (about 6 cups) of organic 12-0-0 fertilizer. Apply nitrogen as a split application, with half applied before or with planting in a furrow, and then again as the buds form on the plant, by broadcasting or fertigating. Phosphorus and potassium should be added before or at planting but should only be applied based on soil test results, as these nutrients can build up in the soil. [USU's "Urban Garden Soils: Testing and Management"](#) is a useful tool for calculating nutrient applications.

### Irrigation, Pests, and Disease

Well-drained soils are optimal. Irrigation is typically delivered via drip irrigation or flood irrigation in Utah. Overhead/sprinkler irrigation is not recommended for cut flower production. Further research is needed to establish specific irrigation rates. Avoid overwatering as this may lead to root rot. In general, during root establishment, lightly irrigate 2 to 3 times per week to ensure adequate soil moisture for the new transplants. Following establishment, sunflowers are quite drought tolerant and low water users and can be watered deeply once per week at approximately 1 inch of water per week.

Keep a watchful eye on plants for early intervention and management of diseases and pests. See Tables 2 and 3 for common diseases and pests. See also the "[Pest Management for Utah Cut Flower Production: Insects and Their Relatives](#)" fact sheet for additional management information.



*Figure 2. The stages of flower opening relative to optimal harvest timing.*

## Harvest and Storage

Harvest begins about 50 to 60 days after seeding or transplant. Harvesting should take place when petals have begun to lift from the center disk and are in the “lift stage” or “cup stage,” but have not fully opened, which decreases vase life (Figure 2). When centers become fuzzy, the bloom is too open and is no longer marketable. Aim to harvest stems early in the morning or later in the evening, when the sunlight is less intense, and the temperatures are cooler (e.g., lower than 75 °F). Single-stem sunflowers should be cut at the soil surface, leaving only the root system in place to decompose, making beds easier to prepare for the next crop. Stems can then be cut to the desired length when processing for customers. Branching sunflowers should be cut at the base of their individual branch, without removing subsequent blooms.

After harvest, remove all foliage except the two leaves closest to the bloom. Place stems into cool, clean water in clean buckets. Band in 5- to 10-stem bunches, depending on stem thickness and bloom size. When sold to florists, sunflowers are typically bunched in bundles of five for large (3- to 5-inch) blooms, and 10 for smaller (2- to 2.75-inch) blooms. The acceptable market length for stems is 24 to 30 inches long. Line up flowers with similar stem lengths carefully with blooms facing out (Figure 3) and cut the bunch evenly to the shortest stem, wrapping securely with a rubber band. Depending on the market, bunches can be mixed or single variety.

Store between 36 and 41 degrees in a cooler. When harvested between the “lift stage” and “cup stage,” stems will hold in a cooler for 7 to 10 days. If harvested after the optimal stages, when the blooms have further opened, stems will hold for about 3 to 5 days in the cooler. Sunflowers may benefit from using CVBN tablets to keep water clean and reduce bacterial growth during long-term storage.

## Postharvest Bed Management

Sunflower production results in bulky, woody biomass that requires management. For operations that practice tillage, healthy stems and roots can be incorporated back into the soil to break down over the winter months prior to planting in the next growing season. For more rapid bed turnover, remove as much of the stem from the field and till roots into the soil. Stems can be composted only if they are free of disease or other

pests. Because of their woody structure, composted stems should be cut into smaller pieces, ideally, 6 inches or less. If stems are diseased, they should be destroyed and not composted.

## Economics

Sunflower is a critical focal flower in summer and fall arrangements at markets of all sizes, from florists to farmers markets, roadside stands, and more. They command wholesale prices of \$0.50 to \$0.80 per stem and retail prices of \$1.00 to \$1.60 per stem, depending on bloom size, stem length, and variety. The combination of pricing and the low input and maintenance requirements of sunflowers makes them an excellent crop to grow on Utah farms.



*Figure 3. An example of stems evenly lined up with blooms facing out for bunching.*

## Summary

Sunflower is low-maintenance, full-sun crop that is well-adapted to Utah’s hot and dry conditions. Single-stem cultivars are most popular for cut flower production. Direct-sow every 1 to 3 weeks, starting up to 2 weeks before the average last freeze date in spring and ending as late as 1 week before the average first freeze date in fall. Expect harvest within 50 to 60 days after sowing. Succession planting creates a continuous supply. Sunflowers are popular across markets in Utah from summer through fall.

**Table 2. Common diseases of sunflowers for cut flower production.**

Disease	Identification	Control
<b>ROOT AND STEM ROTS</b> ( <i>Pythium</i> sp., <i>Rhizoctonia</i> sp.)	Fungi infect roots and crowns, producing dull-colored foliage or wilting followed by yellowing, stunting, and death. Roots are dark, soft, or decayed.	Plugs should be transplanted with well-developed roots that are not root-bound. Plant in well-drained soil and avoid excessive irrigation and standing water. Dig out and destroy infected plants.
<b>POWDERY MILDEW</b> ( <i>Golovinomyces</i> sp.)	This fungal disease produces a white or light gray powder on leaves, stems, and occasionally, flowers.	Use proper spacing and monitor for early infection. Control early season infestations with sulfur-based products, potassium bicarbonate, or some fungicides. For late season, chemical control may not be warranted. Remove and destroy plants after fall freeze.

**Table 3. Common pests of sunflowers for cut flower production.**

Pest	Identification	Control
<b>APHIDS</b>	Aphids cause damage by sucking sap from leaves and stems, leading to distorted growth, yellowing, and honeydew residue. <i>Identification:</i> Aphids are small (~1/8 in.) and pear-shaped. Their color, host preferences, and life cycle vary depending on the aphid species.	Monitor frequently using visual observation and yellow sticky cards, as populations can grow rapidly. Purchase beneficial insects for covered crops (greenhouse, high tunnels) or encourage them outdoors with flowering plants. Spraying a strong stream of water dislodges non-winged aphids. Treat with an organic insecticide, such as insecticidal soap or horticultural oil.
<b>CATERPILLARS</b> (stem-boring and foliar-feeding)	Caterpillars are the larval stage of moths and butterflies. Adult moths or butterflies lay eggs on the host plant, which hatch into the damaging larval stage. Some species tunnel into plant parts such as stems, while others consume leaves. <i>Identification:</i> The colors of adults and larvae, their plant hosts, and life cycles vary depending on the species. After a period, larvae pupate and repeat the life cycle.	Monitor feeding damage and the presence of caterpillars, as their severity reflects population levels. Pheromone monitoring traps are available for certain species. Use cover (insect netting or spunbond materials) to exclude adults from laying eggs. Remove damaged plants. When thresholds are reached, apply an organic insecticide, such as Bt or spinosad.
<b>EARWIGS</b>	Earwigs are omnivorous, feeding on other arthropods and a wide range of crops. Earwigs hide in tight and dark spaces on plants, feeding on stems, leaves, flower parts, organic matter, and other insects. <i>Identification:</i> They have elongated brown bodies (~5/8 in.) with prominent rear "pinchers" (cerci). They are active season long but peak in midsummer.	Monitor feeding damage and look for earwigs (hiding within blooms or other tight spots) early in the morning or in the evening. Create bait traps using filled containers (such as with soy sauce or oil) with a perforated lid, buried at soil level. Replace traps regularly and repeat yearly. When thresholds are reached, apply an organic or synthetic insecticide (concentrate or granular) labeled for earwigs and the intended plants.
<b>GRASSHOPPERS</b>	Adults are highly mobile, with large hind legs. Their feeding primarily damages foliage but can affect other plant parts as well. <i>Identification:</i> Size, color, and pattern vary by species and life stage. Egg clusters overwinter a few inches below the soil. Population levels depend on weather and past management practices.	Begin monitoring early for young nymphs and feeding damage. Because grasshoppers are highly mobile, manage them across a wide area. Baits (e.g., wheat bran with carbaryl or <i>Nosema locustae</i> ) are most effective early in the season. Use trap plants (grasses) around crops and/or row covers. Apply insecticides—preferably on trap plants—only when needed.

<b>LEAFMINERS</b>	<p>"Leafminer" describes insects, usually fly larvae, that create serpentine patterns (mines) as they feed between leaf layers. While their feeding rarely impacts overall plant health, it can affect aesthetics.</p> <p><i>Identification:</i> Size, color, host preferences, and life cycles vary depending on the species.</p>	<p>Monitor early in the season for early stages of mining. Smash larvae between the leaf layers or clip and remove entire leaves. At the end of the season, cultivate soil near problem sites to disrupt the pupal stage. Rotate crop types each year. Spraying will have low efficacy, as larvae are protected between leaf layers.</p>
<b>SPIDER MITES</b>	<p>Spider mites (family Tetranychidae) have a wide range of host crops. They feed on the undersides of leaves, causing leaf stippling (small yellow spots), bronzing, or scorching. High populations leave noticeable webbing.</p> <p><i>Identification:</i> Spider mites are microscopic, translucent, and yellow. They are most active during mid to late summer and have multiple generations in a season.</p>	<p>Frequently monitor the lowest plant leaves beginning in late spring, as mites crawl from the ground and up the plants. Keep crops healthy, as stressed plants are most susceptible. Encourage or purchase predators (e.g., predatory mites). Minimize conditions in and around planting that cause dust to collect on plants. Spraying a strong stream of water can dislodge and kill colonies. If populations reach threshold, consider an organic insecticide, such as insecticidal soap or horticultural oil.</p>
<b>THRIPS</b>	<p>Thrips (family Thripidae) are very common. They feed with a punch-and-suck behavior, causing stippling, leaving behind dark fecal spots, and may also vector various viruses.</p> <p><i>Identification:</i> Adult thrips are very small (&lt;1/12 in.) with elongated yellow-brown bodies and two pairs of fringed (hairy) wings. They have a wide range of hosts and produce several generations throughout the season.</p>	<p>Monitor frequently by visual observation and yellow and/or blue sticky cards as populations can grow rapidly. Purchase beneficial insects for protected crops (greenhouse, high tunnels) or encourage them outdoors with flowering plants. Spraying a strong stream of water can dislodge and kill populations. If populations reach threshold, consider an organic insecticide, such as insecticidal soap or horticultural oil.</p>
<b>TRUE BUGS (PLANT, SEED, AND STINK BUGS)</b>	<p><u>Plant bugs</u> represent diverse insect families, including species like lygus bug. They feed on a wide range of host crops using piercing-sucking mouthparts, injecting toxic saliva that causes distortion, stippling, and possible wilting. <i>Identification:</i> Adults have a distinctive triangular shape on their backs when wings are folded. Their size, color, and host preferences vary by species, and they are most active during the summer.</p> <p><u>Seed bugs</u> (family Lygaeidae) are a diverse group of insects. They feed on a wide range of host crops using piercing-sucking mouthparts. Large numbers of aggregating adults can cause plants to wilt and die rapidly. <i>Identification:</i> Their size, color, and host preferences vary by species, and they are most active near the end of the season on developing seed heads.</p> <p><u>Stink bugs</u> (family Pentatomidae) are a diverse family of insects. The pest species feed on a wide range of host crops using piercing-sucking mouthparts, which can cause distortion and stippling on various parts of</p>	<p>Monitor frequently during midsummer when populations are greatest. Reduce nearby weeds that may also host plant bugs. If populations reach threshold, consider an insecticide with an active ingredient labeled for plant bugs and the crop.</p>

	the plant. <i>Identification:</i> Adults have a distinctive shield shape and lay barrel-shaped eggs in clusters. Their size, color, and host preferences vary by species.	
<b>WEEVILS</b>	Weevils (family Curculionidae) are diverse species of small insects ( $\leq \frac{1}{4}$ in.), including head clipping and stem weevils. They cause damage by boring into plant parts and leaf-feeding, causing notching or small holes. <i>Identification:</i> Weevils have elongated snouts. Their color, host preferences, and life cycles vary depending on the species.	Monitor feeding damage and beetle/larvae presence through visual inspection or shaking leaves over paper.

Note. Most pests are general classifications, and research is ongoing for further classification.

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