



Care of Cut Flowers and Foliage

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Floral designers want the flowers in their arrangements to stay in good shape as long as possible. However, we first need to understand why flowers die in order to keep them fresh.

CUTTING AND CONDITIONING FLOWERS

The stage at which to cut flowers. Each type of flower has a proper stage of development or maturity for cutting, which for most flowers is just before they are fully open or mature. That is, the blooms are more developed than tight buds but not so old that they are starting to deteriorate. Examples in this category include baby's breath, chrysanthemum, carnation, pinks, cornflower, cosmos, dahlia, delphinium, geranium, nasturtium, sunflower, and snapdragon.

Some flowers keep best when cut in the bud stage or when just starting to open, for example, daffodil, iris, peony, poppy, and tulip. Gladiolus may be cut when the two lowest buds are open or can be allowed to develop more fully. Some flowers keep best when fully open at cutting time; examples are daisy, marigold, orchid, violet, and zinnia.

The above suggestions apply to flowers that are cut in the garden. When brought from a florist, the flowers are usually somewhat more open. Note that the cutting and handling of roses requires special care and is discussed separately and in detail in a later section.

The best time of day. Late afternoon or evening is the best time, since the plant has more stored food then. Early morning is the next best, because the plant is turgid then. Avoid cutting flowers in the heat of the day when the plants are wilted.

How to cut the blooms. Cut the stems somewhat longer than needed, using a sharp knife or shears. The additional stem length is necessary for later re-cutting when the flower is placed in water or into an arrangement. As each stem is cut, remove all the leaves that will be in the water. Also, be especially careful to remove any leaves that are diseased, insect-damaged, or insect-ridden. In addition, take off damaged or diseased petals. As each stem is cut and the unneeded leaves are removed, the stem should be placed *immediately* into a pail of warm water. This is especially important if a large number of flowers are to be cut or if it is a hot day. To further prevent wilting, cover the flowers in the pail with a plastic bag.

Conditioning flowers after cutting. Regardless of how careful you have been in cutting flowers in the garden, a certain amount of wilting will occur. It is necessary therefore to condition the flowers so that they are again full of water before they are arranged. Conditioning should last at least one and preferably several hours. Overnight conditioning is

even better. For flowers brought in from the garden or purchased from the florist, do the following:

1. Have the containers of warm water ready (about 100° - 110° F., bath water temperature). Although warm water is better than cold, many flowers are not “fussy” and take up cold water readily. In case of doubt, use warm water.
2. The water should be about half the depth of the entire stem length, preferably containing a floral preservative or bactericide.
3. Recut the stems at an angle. Remove one to two inches with a sharp knife (or shears), under warm water, if possible. Probably the easiest way to do this is to make the cut while holding the stem under running warm water. Then immediately place the stem into a container of warm water with preservative before the stem end dries.
4. When the stem is handled for re-cutting, remove any leaves that will be in the water.
5. Keep the blooms dry and out of the water.
6. Store the containers of cut flowers in a cool, humid place, free from drafts.

WATER FOR CUT FLOWERS

Water quality affects flower life. Both hard water (containing many dissolved materials) or hard water that has been “softened” with a home water-softener are unsatisfactory for keeping flowers fresh. Hard waters are often alkaline (pH 7 to 10) rather than acid (pH 4 to 6). The only satisfactory means of improving hard or softened waters is to distill or deionize them, or you can buy water that has been so treated. Rainwater that is relatively clean is also useful. Floral preservatives contain some acidifying material that helps make water more acid and desirable. However, hard alkaline waters may require twice the amount of preservative as distilled, acid or naturally soft water.

PROLONGING THE LIFE OF CUT FLOWERS AND FOLIAGE

Prevent wilting and improve water uptake. Extending from the roots through the stem and out into every part of the leaves and flowers are water-conducting xylem cells through which water moves to keep the whole plant turgid. This lifeline of xylem cells must continue to work to prevent wilting and death. For water to continue to circulate, some must be transpired (given off and lost) by the leaves and flowers. If transpiration is too rapid, the plant wilts and dies. Thus, to keep the flowers, leaves, and stem from wilting, water must be continuously taken up into all parts of the plant but must not be lost too rapidly.

Enhance water uptake. Since most of the water comes in through the cut end of the stem, this surface must be kept functioning. The following steps encourage water uptake.

1. Cutting stems under warm water and immediately placing them into a container of warm water prevents air bubbles from getting into the cut end of the stem, plugging up the conducting cells, and preventing or slowing

down water uptake. Warm water forces out any bubbles that by chance get into the end of the stem.

2. Bacteria attach and destroy the cut end of the stem and effectively plug up the conducting tissues. This condition is the most frequent cause for short flower life. All plant tissues in water will rot, but leaves do so more readily. Use a bactericide (such as chlorine bleach) or a floral preservative to control bacteria.
3. A sharp knife used to make a clean diagonal cut does minimal damage to the stem end. The only practical way to cut a flower stem with a knife is diagonally. The sharp stem end also penetrates floral foam more easily when the flowers are arranged. Sharp shears can be substituted when a knife is difficult to use, but avoid crushing the stems.
4. Use care not to bruise, cut, or damage the bark or stem surface, or to break the stem when handling flowers.
5. Check the water level in the container daily, and add enough to keep all stems in water. This is especially important if floral foams are used as stem holders.
6. If the water becomes cloudy, change it. Wash the container thoroughly, and recut the stems to get rid of bacteria and to expose a fresh stem end.
7. Use only clean, thoroughly washed or sterilized vases and containers.

Prevent water loss and wilting. Once the leaves and stems are full of water, excessive water loss can be minimized as follows:

1. Store flowers and finished arrangements not on display in a cold, humid place out of the sun and away from other heat sources or drafts. A refrigerator set at 40° to 50° F. is satisfactory. Always wait to arrange your flowers until they are full of water. A plastic bag or sheet placed over the blossoms will raise the humidity and prevent drafts, either in or out of the refrigerator.
2. Keep the flower stems in the container of water until they are to be arranged. Flowers out of the water will soon dry out and wilt. Avoid unnecessary handling. Remember that your hands are warm and will dry out the flowers. Use the stem as the flower's 'handle.'

Treat woody stems. Branches of flowering or leafy shrubs or tree branches (i.e. forsythia, privet, spirea, pear, and redbud) and some plants with woody stems (i.e. chrysanthemum) sometimes require special treatment:

1. Prune the branch to remove all excess leaves and flowers, and remove any that will be in water.
2. Split the cut end one to four inches with a strong knife or shears. Split the larger branches in several planes. Then cut them an inch or so from the base under warm water and place the stems in warm water containing a preservative. Allow them to soak for several hours but preferably overnight.
3. If possible, cut the branch so it ends in the softer, new growth where the bark and wood are not so thick and hard.

4. Cut more branches than you expect to use, for even with the best of care, not all will take up water satisfactorily.

Treat stems that bleed milky sap. Poppies, poinsettias, euphorbia, and some dahlias have difficulty in absorbing water after being cut. Place the stems in hot water or dip the lower ends in boiling water for 5 seconds. Another method is to sear the cut ends with a flame for a few seconds and then to place the stems in warm water.

Conserve food stored in flowers, leaves, and stems. A cut flower will die, even though it is full of water, when its supply of food is used up. The best stage of development for cutting each kind of flower is related to the amount of stored food in it. Young, immature flowers have not accumulated much food, while old flowers that are past their prime have almost exhausted their reserves. If the flower has been cut at the proper stage, the food supply can be conserved or supplemented in the following ways:

Store flowers in the coldest place available that is above freezing. Most flowers keep longest at 35° F. Temperatures of 40° to 50° F. are most likely to be available and are satisfactory except for long-term storage. A few flowers, such as gladioli, keep best at 50° F. As mentioned earlier, finished flower arrangements will stay fresher longer if kept in cold storage when not on display. When displayed, the arrangements should be placed in a relatively cool area if possible. Avoid radiators, sunny windows, the tops of television sets, and other such places.

Use floral preservatives. A number of commercial floral preservatives are available, and, if used properly, can prolong the useful life of cut flowers by one to several days. Sometimes the life span is even doubled. Carefully follow the directions for these brand-name products. If you know that your water is quite alkaline (pH 8-10) or hard, or both, use up to twice the recommended amount. You may also wish to experiment on your own.

Several homemade floral preservatives such as the following work quite well:

1. 2 teaspoonfuls (t.) sugar + 1/2 t. chlorox (or similar material) + 1/4 t. alum + 1 quart water.
2. 2 tablespoonfuls (T.) white vinegar + 2 t. sugar = 1/2 t. chlorox + 1 quart water.
3. 1 pint non-diet (must contain sugar) non-cola drink (i.e. Sprite, 7-up, etc.) + 1/2 t. chlorox + 1 pint water.

All floral preservatives prolong flower life best if used when the blooms are first cut from the garden. Cut the stems under warm water and place them immediately into warm water containing the preservative. Preservatives are worth using even later, for example, after the flowers are received from a florist. If it is usually necessary to change the water, but if it does become cloudy (indicating unusual bacterial activity), the solution should be changed. In addition, wash the stem ends and container and also recut the stems.

Most floral preservatives, including homemade ones, contain ingredients that do the following things: (1) provide sugar to supply energy for the flower as its food supply is exhausted; (2) contain a bactericide to control the bacteria that decay the stem and prevent water uptake; and (3) supply an acidifier that will increase acidity to a pH of 4.5. This pH level slows down bacterial activity and approximates the acidity of plant sap, which encourages better water uptake. Many commercial preservatives also contain ingredients that, according to the manufacturers, may help retain flower color, increase water uptake, and reduce the rate of food usage.

Repeated scientific testing has shown that aspirin or pennies (to supply copper to reduce bacterial activity) in the water do *not* prolong the useful life of cut flowers.

Prevent injury from ethylene gas. Ethylene gas will cause many flowers to close up or wilt rapidly and die. The very small amounts of ethylene that will cause flowers to die cannot be detected by smell. Certain plants are especially sensitive to this gas and are sometimes used to detect its presence. For example, the leaves of tomato or marigold plants will turn down, and snapdragon florets fall off when exposed to minute amounts of ethylene.

Ethylene gas is given off by most fruits and vegetables, especially apples. As these fruits and vegetables decay, even more gas is produced. However, decaying and diseased flowers, leaves, and stems also give off ethylene. Do not store your flowers with fruits, vegetables, or decaying plant materials.

TIPS FOR ROSE CARE

The rose is the favorite flower of many people. Roses, however, sometimes do not keep well, possibly because they are cut too “tight,” allowed to open too much, or because they somehow fail to take up water. The proper stage of development is all-important when cutting roses from the garden. The best time is late in the afternoon when the rose is full of water and has the most stored food.

When to cut a rose. The proper stage of development depends on the number of petals. Rose varieties with 30 to 40 petals have graceful, urn-shaped buds. Cut them when one or two outer petals have loosened from the bud and the green sepals have turned down. Some roses have many petals (60 to 90) and short, fat, rounded buds; delay cutting them until three or four petals have separated from the bud. If cut too tight, they may never open. Roses with few petals (20 or less) and long, slender buds should be cut “tight,” or just as the tips of the petals show color. If cut when they are open, these roses will open fully very rapidly.

After cutting, remove leaves that will be in the water and remove the prickles carefully so as not to injure the stem’s bark. Then recut the stem under warm water and place it immediately into a container of warm water with preservative.

How to buy long-lasting roses. Good florists can be trusted to supply fresh roses at the right stage of development. Roses should have been in water with a floral preservative long

enough to be conditioned and firm so that they will open fully and remain attractive for several days. The outer one or two petals should be loose, with the sepals turned down around the stem. The flowers should have a rich, fresh color and a crisp feel. Look for the following signs to recognize “poor buys.”

Old roses: many petals loosened; little bud left in center; a dull, faded look; a soft, flabby feel; and water-soaked foliage. These roses will open rapidly and be short-lived, so avoid buying them.

Immature roses: no petals loosened, and definitely cut too tight (if the bud is short and fat, it may never open); the bud feels hard; and the sepals are tight against the bud. Special care is required to get immature roses to open properly, so don't take a chance in buying them.

How to care for gift roses. You may receive roses as a gift, packed in a box without water, or arranged with their stems in a container of water or in wet floral foam. Here are some tips to get the most enjoyment from them.

Boxed roses without water.

- Remove all foliage that will be in water.
- Cut the stems up about one inch from the ends while holding them under warm water.
- Place the cut stem ends in warm water containing floral preservative. Keep the roses in a cold, draft-free place while they soak up water.
- When arranging them, recut the stems and immediately place the roses in a container of warm water with a preservative. Soak floral foams in a preservative before use.

Roses arranged in a water-filled container.

- Check the water level in the container; fill it to the brim with water or a preservative solution.
- Check the water level daily.
- Place the arrangement in the coolest place available for display; refrigerate it when not on display. Avoid drafts, direct sun, or heat.

Reviving wilted roses. If a rose wilts or is wilted upon receipt, try doing the following: Remove it from the arrangement; recut the stem under water as above; submerge the entire rose, including stem and foliage, by laying it out flat in a pan of warm water or in the bathtub; and replace it in the arrangement after it has revived by becoming full of water again (often after 20 minutes to an hour). Some immature roses, which have been cut too tight and have wilted severely at the “neck” (the stem just below the flower), can never be revived.

CARE OF FOLIAGE

The cut foliage of many flowers does not keep as long as the flowers themselves and thus is not useful to the flower arranger. Examples are aster, marigold, and zinnia. Remove much of this foliage as you cut the flowers because it is thin and soft and wilts rapidly.

The flower arranger prizes thick, stiff, sturdy, strong-veined foliage that is long-lasting i.e. daffodil, iris, gladiolus, magnolia, cattail, peony, and sanseveria. Select old, mature leaves; avoid young, immature foliage. Place just the lower ends of these leaves in water in tall, narrow containers.

Some leaves, for example hosta, croton, English ivy, and lily-of-the-valley, should be immersed in water for an hour or so, then placed in polyethylene bags and stored moist in a cool place. Ferns are best stored out of water, but they should be kept moist and cool in plastic bags until used.

Evergreens such as pine, yew, juniper, and arborvitae require no special care, but are also best stored moist and cool in plastic bags until used.