



Fresh Cut Flower Handling for Retail Florists

Dear Florist:

Enclosed are care and handling sheets for 46 fresh cut flowers and greens. Copies of these sheets are meant to be included with your flower orders to retail florist to remind them that proper care and handling along the distribution chain is important.

The enclosed sheets are high quality and camera-ready for reproduction. There are two, $5\frac{1}{2} \times 8\frac{1}{2}$ -inch, copies on each sheet. To customize the sheets, there is space at the bottom for you to paste your company's address and logo. You can also choose the color of paper.

The care and handling information was taken from:

Postharvest Handling and Storage of Cut Flowers, Florist Greens, and Potted Plant, 1990. Joanna Nowak and Ryszard M. Rudnicki, Timber Press.

Cut Flowers Prolonging Freshness Postproduction Care and Handling, 1993. John Sacalis, ed. Joseph L. Seals. Ball Publishing.

SAF Flower and Plant Care Manual, A Contemporary Approach, 1994. George Staby, SAF.

The fresh cut flowers and greens included are:

Acacia	Christmas Greens	Leatherleaf Fern
Aconitum, Monkshood	Cymbidium Orchids	Lemonleaf
Agapanthus	Daffodils	Liatris
Allium	Marguerite Daisy	Lilies
Alstromeria	Dahlia	Mixed Bouquets
Anemome	Delphinium	Protea
Anthurium	Foxtail Lily	Roses
Asparagus Fern	Eucalyptus	Snapdragons
Astilbe	Freesia	Statice, Annual
Aster	Gerbera Daisy	Stocks
Baby's Breath	Ginger	Sunflower
Bird-of-Paradise	Gладиолус	Sweet William
Bouvardia	Heliconia	Tulips
Carnations	Holly	Woody Plant Branches
Cattelya Orchids	Huckleberry	
Chrysanthemums	Iris	

K-State Research and Extension Horticulture Division

Karen L.B. Gast, Ph.D., Extension Specialist—Postharvest and Marketing; Jennifer Neujahr, Extension Assistant



Kansas State Florists Association

Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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March 1998

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File code: Horticulture—1

3-98—50

Wholesale and Retail Flower Handling

Acacia, *Acacia* spp., Wattle, Mimosa

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in the floral preservative and then in cold storage—32 to 36°F and 95 to 100 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Acacia loses water quickly and has a tendency to dry out. Place in a cool location, away from rapid air movement, and provide as much humidity as possible.

Vaseline

3 to 5 days.

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Wholesale and Retail Flower Handling

Aconitum, *Aconitum napellus*, Monkshood,
Aconite, Wolfsbane

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage —32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Avoid placing near extremes of heat and cold. Poisonous. Native to temperate areas.

Vaseline

12 to 14 days.

Wholesale and Retail Flower Handling

Aconitum, *Aconitum napellus*, Monkshood,
Aconite, Wolfsbane

Processing Care

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Wholesale and Retail Flower Handling

Agapanthus, Agapanthus africanus

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- This species is ethylene sensitive, determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Agapanthus is extremely sensitive to ethylene. Premature flower fall is a result due to exposure to ethylene.

Vaseline

6 to 12 days.

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Wholesale and Retail Flower Handling

Allium, Allium giganteum

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 4.0.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to 4.0 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—40 to 45°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Allium lasts best without storage; storage greatly reduces vase life in Allium.

Vaseline

10 to 14 days.

Wholesale and Retail Flower Handling

Allium, Allium giganteum

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 4.0.
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Vaseline

10 to 14 days.

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Wholesale and Retail Flower Handling

Alstromeria, Peruvian Lily, Lily of the Incas,
Alstroemeria hybrids

Processing Care

- Unpack and unwrap flower bunches from shipping box as soon as possible.
- Recut flower stems under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is ethylene sensitive, determine whether flowers have been treated with silver thiosulfate. If not, pulse with silver thiosulfate solution.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Alstromeria is sensitive to fluoride and high sugar concentrations in preservative solutions. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves. Check with floral preservative manufacturer to determine if their product's sugar content is safe for alstromeria.

Vaseline

1 week.

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Alstromeria, Peruvian Lily, Lily of the Incas,
Alstroemeria hybrids

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Other Comments

Alstromeria is sensitive to fluoride and high sugar concentrations in preservative solutions. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves. Check with floral preservative manufacturer to determine if their product's sugar content is safe for alstromeria.

Vaseline

1 week.

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Wholesale and Retail Flower Handling

Anemone, Anemone hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to 3.5.
- This species is ethylene sensitive, determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
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- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Anemones are sensitive to fluoride. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves.

Vaseline

3 to 6 days.

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Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Anemones are sensitive to fluoride. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves.

Vaseline

3 to 6 days.

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Wholesale and Retail Flower Handling

Anthurium, Anthurium x cultorum

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably deionized.
- Pulse anthuriums in 1,000 ppm silver nitrate solution for 10 to 40 minutes to prevent reduced vase life from excessive evaporation. Must always use deionized water when working with silver nitrate.
- After hydrating or pulsing, place flowers in floral preservative and then in cool storage—55°F.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Anthuriums are very chill sensitive and must be stored at proper temperature to ensure that there is no damage. If flower heads appear wilted, immerse head in water for 10 minutes, and then replace stem in preservative solution.

Vase Life

14 to 28 days.

Wholesale and Retail Flower Handling

Anthurium, Anthurium x cultorum

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Wholesale and Retail Flower Handling

Asparagus fern, Asparagus setaceus

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Store branches at 38 to 42°F, relative humidity 80 to 90 percent.

Display Care

Check daily, refresh if needed, and discard diseased or damaged branches.

Other Comments

This type of fern suffers from premature leaf fall, induced by water stress. Therefore, this product should not be stored for a prolonged period of time.

Vaseline

6 to 14 days.

Wholesale and Retail Flower Handling

Asparagus fern, Asparagus setaceus

Processing Care

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Wholesale and Retail Flower Handling

Aster, Callistephus chinensis

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Before hydration, dip stems in 1,000 ppm silver nitrate for 10 minutes. Next, add 8-hydroxyquinoline citrate to retard bacterial buildup.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

China asters suffer from aster wilt, a fungus, and aster yellows, a virus-like disease. Both can be fatal or can disfigure stems and flowers, impeding water uptake.

Vaseline

5 to 10 days.

Wholesale and Retail Flower Handling

Aster, Callistephus chinensis

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
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Astilbe, Astilbe x arendsii

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
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Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Keep flowers away from ripening fruit.

Vaseline

5 to 8 days.

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Astilbe, Astilbe x arendsii

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Baby's Breath, *Gypsophila paniculata*

Processing Care

- Unpack and unwrap flower bunches from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
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- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Baby's Breath is sensitive to ethylene. If exposed, the flowers will fail to open.

Vaseline

5 to 7 days.

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- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendations.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Baby's Breath is sensitive to ethylene. If exposed, the flowers will fail to open.

Vaseline

5 to 7 days.

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Wholesale and Retail Flower Handling

Bird-of-paradise, *Strelitzia reginae*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is chill sensitive.
- Place in storage at 55 to 70°F.

Display Care

Check flowers daily, discard diseased and damaged flowers, and recut stems.

Other Comments

This species is chill sensitive and can be left at room temperature to allow for proper storage. Watch for emerging spathes. If need be, flowers can be manually separated or removed from the spathes.

Vaselife

7 to 14 days.

Wholesale and Retail Flower Handling

Bird-of-paradise, *Strelitzia reginae*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is chill sensitive.
- Place in storage at 55 to 70°F.

Display Care

Check flowers daily, discard diseased and damaged flowers, and recut stems.

Other Comments

This species is chill sensitive and can be left at room temperature to allow for proper storage. Watch for emerging spathes. If need be, flowers can be manually separated or removed from the spathes.

Vaselife

7 to 14 days.

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Bouvardia, Bouvardia hybrids

Processing Care

- Unpack flowers from the shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cool storage not below 50°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

It is important to keep the temperature above 50°F to help avoid conditions that promote moisture loss. Flowers last longer if all foliage and shoots developing outside the umbel of flowers are removed.

Vaseline

1 to 2 weeks.

Wholesale and Retail Flower Handling

Bouvardia, Bouvardia hybrids

Processing Care

- Unpack flowers from the shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
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Other Comments

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Vaseline

1 to 2 weeks.

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Carnations, *Dianthus caryophyllus*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Carnations have about the longest vase life of any cut flower. Even though they are long-lived this will only occur if they are gently handled.

Vase life

1 to 3 weeks.

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1 to 3 weeks.

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Cattleya Orchid, *Cattleya* hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Make sure vials are filled with water.
- Orchids are very ethylene sensitive, however, do not use silver thiosulfate because it will not improve longevity.
- Place in cool storage—55 to 60°F.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers.

Other Comments

Orchids are extremely sensitive to ethylene. Keep away from ripening fruit.
Orchids are not stored very long. Flowers will keep for 1 week if kept cool.

Vaseline

4 to 5 days.

Wholesale and Retail Flower Handling

Cattleya Orchid, *Cattleya* hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Make sure vials are filled with water.
- Orchids are very ethylene sensitive, however, do not use silver thiosulfate because it will not improve longevity.
- Place in cool storage—55 to 60°F.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers.

Other Comments

Orchids are extremely sensitive to ethylene. Keep away from ripening fruit.
Orchids are not stored very long. Flowers will keep for 1 week if kept cool.

Vaseline

4 to 5 days.

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Chrysanthemums, *Dendranthema grandifolia*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Remove any foliage that will be under water.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flower, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Use preservative at prescribed dose. If too much is used, leaf and stem yellowing can occur.

Vaseline

1 to 2 weeks.

Wholesale and Retail Flower Handling

Chrysanthemums, *Dendranthema grandifolia*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
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Other Comments

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Vaseline

1 to 2 weeks.

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Christmas Greens, *Abies*, *Picea* and *Pinus*

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Store branches at 32 to 36°F, relative humidity 80 to 90 percent dry.

Display Care

Check daily, refresh preservative if used, and discard diseased and damaged branches.

Other Comments

Contrary to what many in the floral trade believe, except for Douglas Fir, Christmas greens do not give off ethylene gas. If these branches are infected with fungi, ethylene gases are possible.

Wholesale and Retail Flower Handling

Christmas Greens, *Abies*, *Picea* and *Pinus*

Processing Care

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- Recut branches under water to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
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Cymbidium Orchid, *Cymbidium hybrids*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems.
- Recheck vials to make sure there is enough preservative in them.
- This species is ethylene sensitive; however, use of silver thiosulfate will not improve longevity of flowers.
- Place flowers in cool storage—50 to 55°F.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers.

Other Comments

Cymbidiums are affected by ethylene gas. Keep cymbidiums away from smoke, ripening fruit and wilting flowers. Also avoid extremes of heat and cold, which may cause a chilling injury.

Vaseline

1 to 2 weeks.

Wholesale and Retail Flower Handling

Cymbidium Orchid, *Cymbidium hybrids*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems.
- Recheck vials to make sure there is enough preservative in them.
- This species is ethylene sensitive; however, use of silver thiosulfate will not improve longevity of flowers.
- Place flowers in cool storage—50 to 55°F.

Display Care

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Other Comments

Cymbidiums are affected by ethylene gas. Keep cymbidiums away from smoke, ripening fruit and wilting flowers. Also avoid extremes of heat and cold, which may cause a chilling injury.

Vaseline

1 to 2 weeks.

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Daffodil, *Narcissus pseudonarcissus*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Daffodils exude a slimy material that is toxic to other flowers. DO NOT hydrate, store, or arrange daffodils with other flowers.

Vaseline

4 to 8 days.

Wholesale and Retail Flower Handling

Daffodil, *Narcissus pseudonarcissus*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Daffodils exude a slimy material that is toxic to other flowers. DO NOT hydrate, store, or arrange daffodils with other flowers.

Vaseline

4 to 8 days.

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Marguerite Daisy, *Argyranthemum frutescens*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Floral preservative is very important in vase water because it encourages bud opening.

Vaseline

3 to 8 days.

Wholesale and Retail Flower Handling

Marguerite Daisy, *Argyranthemum frutescens*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Floral preservative is very important in vase water because it encourages bud opening.

Vaseline

3 to 8 days.

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Dahlia, Dahlia hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flower in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers and recut stems.

Other Comments

Keep dahlias out of direct sunlight and away from rapid air movement. Flowers may shatter if exposed to ripening fruit.

Vaseline

1 to 2 weeks.

Wholesale and Retail Flower Handling

Dahlia, Dahlia hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flower in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
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Display Care

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Other Comments

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Vaseline

1 to 2 weeks.

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Delphinium, *Delphinium hybrids*

Processing Care

- Unwrap flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Keep delphiniums away from rapid air movement and ripening fruit.

Vaseline

12 to 14 days.

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Delphinium, *Delphinium hybrids*

Processing Care

- Unwrap flowers from shipping box as soon as possible.
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- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
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Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Keep delphiniums away from rapid air movement and ripening fruit.

Vaseline

12 to 14 days.

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Foxtail Lily, *Eremurus hybrids*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is a little ethylene sensitive, determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Avoid placing flowers near ripening fruit, heat or direct sunlight.

Vaselife

10 to 18 days.

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Foxtail Lily, *Eremurus hybrids*

Processing Care

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Display Care

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Other Comments

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Vaselife

10 to 18 days.

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Eucalyptus, *Eucalyptus* spp.

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Handle this species with gloves to prevent hands from becoming sticky.
- Store branches at 36 to 38°F, dry.

Display Care

Check daily, refresh preservative if used, and discard diseased and damaged branches.

Other Comments

Eucalyptus can be treated with a glycerin-based solution which will result in a preserved product. Many florists think that Eucalyptus is ethylene sensitive, due to its extreme odor. However, eucalyptus is only ethylene sensitive if it is not properly hydrated.

Vaseline

20 days.

Wholesale and Retail Flower Handling

Eucalyptus, *Eucalyptus* spp.

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Handle this species with gloves to prevent hands from becoming sticky.
- Store branches at 36 to 38°F, dry.

Display Care

Check daily, refresh preservative if used, and discard diseased and damaged branches.

Other Comments

Eucalyptus can be treated with a glycerin-based solution which will result in a preserved product. Many florists think that Eucalyptus is ethylene sensitive, due to its extreme odor. However, eucalyptus is only ethylene sensitive if it is not properly hydrated.

Vaseline

20 days.

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Wholesale and Retail Flower Handling

Freesia, Freesia hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flower have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Fressias are sensitive to fluoride. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves.

Vaselife

1 to 2 weeks.

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Wholesale and Retail Flower Handling

Freesia, Freesia hybrids

Processing Care

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- Unwrap flower bunches.
- Recut flower stems under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
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- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Fressias are sensitive to fluoride. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves.

Vaselife

1 to 2 weeks.

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Wholesale and Retail Flower Handling

Gerbera, *Gerbera* spp.

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Gerberas are prone to bent-neck, so hang flower heads through a mesh support when hydrating.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is not ethylene sensitive.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Be careful of lack of water uptake due to dirty holding solutions. This is the main cause for the bent neck.

Vaseline

4 to 14 days.

Wholesale and Retail Flower Handling

Gerbera, *Gerbera* spp.

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Gerberas are prone to bent-neck, so hang flower heads through a mesh support when hydrating.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is not ethylene sensitive.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Be careful of lack of water uptake due to dirty holding solutions. This is the main cause for the bent neck.

Vaseline

4 to 14 days.

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Wholesale and Retail Flower Handling

Ginger, *Alpinia* spp.

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Due to large size, insects seem to travel well with this plant—inspect and remove any insects.
- This species is chill sensitive, store at 55 to 60°F.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

This species is chill sensitive, make sure flowers do not exhibit chill damage symptoms, such as off-colored (grayish/bluish) blooms, when purchasing.

Vaseline

6 to 14 days.

Wholesale and Retail Flower Handling

Ginger, *Alpinia* spp.

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Due to large size, insects seem to travel well with this plant—inspect and remove any insects.
- This species is chill sensitive, store at 55 to 60°F.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

This species is chill sensitive, make sure flowers do not exhibit chill damage symptoms, such as off-colored (grayish/bluish) blooms, when purchasing.

Vaseline

6 to 14 days.

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Gladiolus, Gladiolus hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flower in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Gladiolus spikes exhibit negative geotropism, meaning if the spikes are laid horizontally the tips will curve upward. Shipping boxes for gladiolus should hold the spikes vertical. Remove the top few buds from the spikes to reduce spike curving and to increase flower opening. Gladiolus are sensitive to fluoride. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves.

Vaseline

1 to 2 weeks.

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Gladiolus, Gladiolus hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flower in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Gladiolus spikes exhibit negative geotropism, meaning if the spikes are laid horizontally the tips will curve upward. Shipping boxes for gladiolus should hold the spikes vertical. Remove the top few buds from the spikes to reduce spike curving and to increase flower opening. Gladiolus are sensitive to fluoride. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves.

Vaseline

1 to 2 weeks.

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Wholesale and Retail Flower Handling

Heliconia, *Heliconia* spp.

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water to ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is extremely chill sensitive, so store at a temperature of 53 to 56°F.

Display Care

Check flowers daily, refresh preservative, discard diseased stems and recut stems.

Other Comments

Heliconia will most likely die due to poor water uptake. Many heliconia can survive for about two weeks in plain tap water if the water is free of microorganisms. Sometimes it helps to dip flowers in such antitranspirants as those sold in garden centers for use on woody plants. One other concern is to check your heliconia for insects since they most often make the trip from grower to retailer.

Vaseline

7 to 14 days.

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Wholesale and Retail Flower Handling

Heliconia, *Heliconia* spp.

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water to ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is extremely chill sensitive, so store at a temperature of 53 to 56°F.

Display Care

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Vaseline

7 to 14 days.

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Holly, *Ilex* spp.

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Store branches at 32 to 36°F, relative humidity 80 to 90 percent, dry.
- This species is ethylene sensitive.

Display Care

Check flowers daily, refresh preservative, discard diseased branches and recut stems.

Other Comments

Treating with STS does reduce fruit and leaf fall. There is no other product presently on the market that will reduce fruit loss.

Vaseline

5 to 14 days.

Wholesale and Retail Flower Handling

Holly, *Ilex* spp.

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Store branches at 32 to 36°F, relative humidity 80 to 90 percent, dry.
- This species is ethylene sensitive.

Display Care

Check flowers daily, refresh preservative, discard diseased branches and recut stems.

Other Comments

Treating with STS does reduce fruit and leaf fall. There is no other product presently on the market that will reduce fruit loss.

Vaseline

5 to 14 days.

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Huckleberry, *Vaccinium ovatum*

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.

Display Care

Check daily, refresh preservative if used, and discard diseased and damaged branches.

Other Comments

You can store for long periods by enclosing precooled bunches in a plastic vapor barrier and holding them at temperatures near freezing. Their woody stems sometimes make it difficult to recut. Recutting this species is less critical than for other floral crops.

Vaseline

20 days.

Wholesale and Retail Flower Handling

Huckleberry, *Vaccinium ovatum*

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.

Display Care

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Iris, Iris hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other comments

Discard flowers if the bud tips are curled or dried because they will probably not open.

Vaseline

2 to 5 days.

Wholesale and Retail Flower Handling

Iris, Iris hybrids

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
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2 to 5 days.

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Wholesale and Retail Flower Handling

Leatherleaf, *Rumohra adiantiformis*

Processing Care

- Unpack greens from shipping box as soon as possible.
- Recut stems under water ½ to ¾ inch.
- Place greens in cold storage—34 to 35°F.

Display care

Check greens daily, discard diseased and damaged stems.

Other Comments

The use of some postharvest antitransparent dips can enhance vasselife but does not reduce frond curl. There is no yet known cause for frond curl, and it cannot be prevented.

Vasselife

7 to 15 days.

Wholesale and Retail Flower Handling

Leatherleaf, *Rumohra adiantiformis*

Processing Care

- Unpack greens from shipping box as soon as possible.
- Recut stems under water ½ to ¾ inch.
- Place greens in cold storage—34 to 35°F.

Display care

Check greens daily, discard diseased and damaged stems.

Other Comments

The use of some postharvest antitransparent dips can enhance vasselife but does not reduce frond curl. There is no yet known cause for frond curl, and it cannot be prevented.

Vasselife

7 to 15 days.

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Wholesale and Retail Flower Handling

Lemonleaf, *Gaultheria Shallon*

Processing Care

- Unpack greens from shipping box as soon as possible.
- Recut greens under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Place greens in storage 32 to 34°F.

Display Care

Check greens daily, refresh preservative, discard diseased and damaged stems, and recut stems.

Other Comments

Even though the stems are woody, florists should cut the stems under water and process them like any other non ethylene-sensitive flower.

Vaselife

10 to 14 days.

Wholesale and Retail Flower Handling

Lemonleaf, *Gaultheria Shallon*

Processing Care

- Unpack greens from shipping box as soon as possible.
- Recut greens under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Place greens in storage 32 to 34°F.

Display Care

Check greens daily, refresh preservative, discard diseased and damaged stems, and recut stems.

Other Comments

Even though the stems are woody, florists should cut the stems under water and process them like any other non ethylene-sensitive flower.

Vaselife

10 to 14 days.

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Liatris, *Liatris* spp.

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

The feathery flowers on the spike are very susceptible to gray mold infection, so care needs to be taken in not letting surface water accumulate on the flowers.

Vaseline

3 to 5 days.

Wholesale and Retail Flower Handling

Liatris, *Liatris* spp.

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

The feathery flowers on the spike are very susceptible to gray mold infection, so care needs to be taken in not letting surface water accumulate on the flowers.

Vaseline

3 to 5 days.

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Lillies, *Lillium hybrids*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Lily pollen may stain anything it touches, so anthers need to be removed.

Vaseline

1 to 2 weeks.

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Wholesale and Retail Flower Handling

Lillies, *Lillium hybrids*

Processing Care

- Unpack flowers from shipping box as soon as possible.
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Wholesale and Retail Flower Handling

Mixed Bouquets

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Do not crowd the bouquets in the holding containers. Crowding crushes the flowers and increases disease incidence.

Vaseline

1 week.

Wholesale and Retail Flower Handling

Mixed Bouquets

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Do not crowd the bouquets in the holding containers. Crowding crushes the flowers and increases disease incidence.

Vaseline

1 week.

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Wholesale and Retail Flower Handling

Protea, *Protea*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water $\frac{1}{2}$ to $\frac{3}{4}$ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cool storage—35 to 45°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Most species are not of tropical origin and are, therefore, not chill sensitive. Leaves on the proteas will turn black due to lack of carbohydrates and warm temperatures. Use fresh flower food to prevent this blackening.

Vaseline

8 to 16 days.

Wholesale and Retail Flower Handling

Protea, *Protea*

Processing Care

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8 to 16 days.

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Wholesale and Retail Flower Handling

Roses, *Rosa hybrids*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Carefully remove any foliage and thorns that will be under water.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Bentneck is usually a problem if: (1) Flowers are grown under low light and conditions where stems stretch and are less sturdy; (2) Flowers are harvested too early so stems are not as mature and; (3) Flowers are not hydrated properly in the market chain.

Vaseline

6 to 16 days.

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Wholesale and Retail Flower Handling

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Wholesale and Retail Flower Handling

Snapdragon, *Antirrhinum majus*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Snapdragon spikes exhibit negative geotropism, meaning if spikes are laid horizontally the tips will curve upward. Shipping boxes for snapdragons should hold the spikes vertical. Remove the top few buds from the spikes to reduce spike curving and to increase flower opening. Snapdragons are ethylene and fluoride sensitive. Be aware that city water is often fluoridated, damage symptoms include yellowing of leaves and tip burn of leaves.

Vaseline

10 to 16 days.

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Wholesale and Retail Flower Handling

Statice, *Limonium sinuatum*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Statice is also an important dried/preserved material. Unsold flowers can be bunched and hung to air dry.

Vaselife

1 to 2 weeks.

Wholesale and Retail Flower Handling

Statice, *Limonium sinuatum*

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- Unpack flowers from shipping box as soon as possible.
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Wholesale and Retail Flower Handling

Stock, *Matthiola incana*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
- If flowers have not been treated with silver thiosulfate, pulse with silver thiosulfate solution according to manufacturer's recommendation.
- If flowers have been treated with silver thiosulfate, hydrate in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

The vase and bucket solutions can develop a very unpleasant smell if the correct amount and type of fresh-flower food solution is not used and if buckets are not properly sanitized.

Vaseline

5 to 8 days.

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Sunflower, *Helianthus annuus*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Remove any foliage that will be under water.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Water stress problems are common and are made more obvious by the flower head weight. To ensure flowers are properly hydrated, use a hydrating agent, cut under water or use warm water.

Vaseline

6 to 12 days.

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Sweet William, *Dianthus barbatus*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Unwrap flower bunches.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Remove any foliage that will be under water.
- This species is ethylene sensitive. Determine whether flowers have been treated with silver thiosulfate.
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- After hydrating or pulsing, place flowers in floral preservative and then in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, refresh preservative, discard diseased and damaged flowers, and recut stems.

Other Comments

Fungal infections can be a problem with this species. This problem is due mainly to wet foliage and flower conditions sometimes experienced at harvest. Ensure flowers are rapidly unpacked and aerated to reduce fungal infection.

Vaseline

5 to 9 days.

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Tulips, *Tulip hybrid*

Processing Care

- Unpack flowers from shipping box as soon as possible.
- Do not unwrap flower bunches until ready to use or sell.
- Recut flower stems under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Hydrate flowers in warm water, 100 to 105°F, preferably acidified to pH 3.5 for 30 to 60 minutes or until flowers, leaves and stems are turgid.
- After hydrating, keep flowers in acidified water and place in cold storage—32 to 36°F and 80 to 90 percent relative humidity.

Display Care

Check flowers daily, discard diseased and damaged flowers, and recut stems.

Other Comments

Postharvest life depends on the cultivar, they range from 3 to 6 days. Short-lived cultivars include Apeldorn, General Eisenhower, Godoshnik, London, Oxford and President Kennedy.

Vaseline

3 to 6 days.

Wholesale and Retail Flower Handling

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Wholesale and Retail Flower Handling

Woody Plant Branches

Processing Care

- Unpack branches from shipping box as soon as possible.
- Recut branches under water ½ to ¾ inch. Use warm water, 100 to 105°F, preferably acidified to pH 3.5.
- Blooming branches are usually shipped in the bud stage with color showing. To open blooms, place branches in warm water, 100 to 105°F, with floral preservative at room temperature.
- Non-blooming branches should be stored at 32 to 36°F, relative humidity 80 to 90 percent, dry.
- Blooming branches should be stored in floral preservative at 32 to 36°F, relative humidity 80 to 90 percent, except Pussy Willow which should be stored dry so the branches won't root.

Display Care

Check daily, refresh preservative if used, and discard diseased and damaged branches.

Woody Branches

<i>Non-Blooming</i>	<i>Dormant Blooming</i>
Curly Willow	Bittersweet
Red Osier Dogwood	Cherry
Yellow Twig Dogwood	Flowering Crab
	Forsythia
	Redbud
	Spirea

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