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, 5½ × 8½-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:


The fresh cut flowers and greens included are:

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

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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

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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.

**Vaselife**
3 to 5 days.
**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.

**Vaselife**
12 to 14 days.
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.

**Vaselife**
6 to 12 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.
• 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.

Vaselife
10 to 14 days.
Wholesale and Retail Flower Handling
Alstroemeria, 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 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 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
Alstroemeria 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 alstroemeria.

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

Vaselife
3 to 6 days.

K-State Research and Extension
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YOUR WHOLESALE FLORIST
COMPANY NAME, LOGO AND ADDRESS goes here.
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 ¼ 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 vaselife 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 wilty, immerse head in water for 10 minutes, and then replace stem in preservative solution.

Vaselife
14 to 28 days.

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YOUR WHOLESALE FLORIST
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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.

Vaselife
6 to 14 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.
• 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.

Vaselife
5 to 10 days.
Wholesale and Retail Flower Handling
Astilbe, Astilbe x arendsii

Processing Care
• Unpack flowers from shipping box as soon as possible.
• Unwrap flower bunches.
• Recut flower stems under water ½ to ⅓ 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 flowers away from ripening fruit.

Vaselife
5 to 8 days.

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Wholesale and Retail Flower Handling
Astilbe, Astilbe x arendsii

Processing Care
• Unpack flowers from shipping box as soon as possible.
• Unwrap flower bunches.
• Recut flower stems under water ½ to ⅓ 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 flowers away from ripening fruit.

Vaselife
5 to 8 days.
Wholesale and Retail Flower Handling
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.
• 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.

Vaselife
5 to 7 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.
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.
- 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.

**Vaselife**
1 to 2 weeks.

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YOUR WHOLESALE FLORIST
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Wholesale and Retail Flower Handling
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.
**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.

### Vaselife
4 to 5 days.
Wholesale and Retail Flower Handling
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.

**Vaselife**
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.
- 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.

**Vaselife**
1 to 2 weeks.
Wholesale and Retail Flower Handling
Christmas Greens, Abies, Picea and Pinus

Processing Care
- Unpack branches from shipping box as soon as possible.
- Recut branches under water to ¼ 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
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.

**Vaselife**
1 to 2 weeks.

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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**
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.

**Vaselife**
1 to 2 weeks.
Wholesale and Retail Flower Handling
Daffodil, *Narcissus pseudonaricissus*

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.

Vaselife
4 to 8 days.

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**Kansas State Florists Association**
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.

**Vaselife**
3 to 8 days.

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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.
- 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.

**Vaselife**
1 to 2 weeks.
Wholesale and Retail Flower Handling
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.

**Vaselife**
12 to 14 days.
Wholesale and Retail Flower Handling
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.
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.

Vaselife
20 days.

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Kansas State Florists Association

YOUR WHOLESALE FLORIST
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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 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 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**
Fresias 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.
Wholesale and Retail Flower Handling
Gerbera, *Gerbera* spp.

**Processing Care**
- Unpack flowers from shipping box as soon as possible.
- Gerbers 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.

**Vaselife**
4 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.

**Vaselife**
6 to 14 days.
Wholesale and Retail Flower Handling
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.

Vaselife
1 to 2 weeks.
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.

**Vaselife**
7 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.

**Vaselife**
5 to 14 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**
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.

**Vaselife**
20 days.

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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.
- 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.

**Vaselife**
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 vase life but does not reduce frond curl. There is no yet known cause for frond curl, and it cannot be prevented.

Vaselife
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 ½ to ¾ 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
Liatris, *Liatris* spp.

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
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.

Vaselife
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 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
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.

Vaselife
3 to 5 days.
Wholesale and Retail Flower Handling
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.

### Vase Life
1 to 2 weeks.
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.

Vaselife
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 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 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.

**Vaselife**
8 to 16 days.
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.

**Vaselife**
6 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.

**Vaselife**
6 to 16 days.
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.

**Vaselife**
10 to 16 days.
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.

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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.

Vaselife
5 to 8 days.
Wholesale and Retail Flower Handling
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.

Vaselife
6 to 12 days.
Wholesale and Retail Flower Handling
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.
- 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**
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.

**Vaselife**
5 to 9 days.

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### Wholesale and Retail Flower Handling

**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.

#### Vaselife
3 to 6 days.

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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 $\frac{1}{2}$ to $\frac{3}{4}$ 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.

<table>
<thead>
<tr>
<th>Woody Branches</th>
<th>Dormant Blooming</th>
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<tbody>
<tr>
<td>Non-Blooming</td>
<td>Curly Willow</td>
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<tr>
<td></td>
<td>Red Osier Dogwood</td>
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<td>Yellow Twig Dogwood</td>
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<td>Dormant Blooming</td>
<td>Bittersweet</td>
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<td></td>
<td>Cherry</td>
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<td>Flowering Crab</td>
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<td>Forsythia</td>
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<td>Redbud</td>
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<td>Spirea</td>
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Wholesale and Retail Flower Handling

Woody Plant Branches

Processing Care

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