Floral Care & Handling Tips to Boost Your Bottom Line

Steve Daum
Why is Care & Handling Important

• Flowers are a perishable commodity.
  – Severed from the root system
• Flowers are a luxury good.
  – Consumer expendable income
• Flowers are commonly mishandled.
  – Consumer dissatisfaction!
  – Consumers expect 7 days of vase life
  – Should be what the industry minimally strives for!
Factors Influencing Consumer Behavior

Based on a consumer study of 1,200 flower-buying households in the U.S., over 14 years and four surveys, consumers rated the following positive/negative influencers:

- Quality
- Value
- Sales Assistance / Courtesy
- Delivery of custom orders
- Plant Quality and Selection
- Desireable Colors
- Fashionable Colors
- Ease of buying
- Unusual Flowers
- Useful Website / Catalog
- Do-it Yourself Flowers

By Percent Surveyed

0% 10% 20% 30% 40% 50% 60%
CARE: Time, Temperature, Sanitation

Pillars of Cut Flower Care
• Keep flowers away from heat as much as possible

• Keep the time outside water / solution as short as possible

• Prep your flowers - develop standardized procedures so quality does not become a coincidence – plan your time!
Temperature

- Temperature has the most influence on vase-life as it affects the metabolism rate of the flower – low temperature slows metabolism
- High humidity slows water loss
- Hydrated flowers are healthy flowers
- High temperatures have a negative effect on the vase-life of flowers
Flower temperatures during shipment from South America to the US.
Temperature & Respiration

- Cut flowers respire 3 x more at 54° F than at 34° F
- Increased respiration rate leads to shorter vase life
- Respiration creates additional heat

[Bar chart showing respiration rate and heat production at different temperatures (0 C/32 F, 12 C/54 F, 18 C/64 F).]
Effects of Temperature

A few degrees matters!
Respiration

**Pink Rose**

- **Temperature (ºC)**
- **Respiration (ml CO2/ kg/ hr)**

- $y = 31.504e^{0.083x}$
- $R^2 = 0.9536$

**Temperature (ºC)**

- 0
- 5
- 10
- 15
- 20
- 25
- 30

**Respiration (ml CO2/ kg/ hr)**

- 0
- 50
- 100
- 150
- 200
- 250
- 300
- 350
- 400

**In respiration rate**

- $y = -6902.6x + 28.692$
- $R^2 = 0.9628$

**1/T (1/K)**

- 0.00320
- 0.00330
- 0.00340
- 0.00350
- 0.00360
- 0.00370

- 0
- 1.0
- 2.0
- 3.0
- 4.0
- 5.0
- 6.0
- 7.0

**FloraLife®**

Experts in Flower Care
## Components in Flower Food

<table>
<thead>
<tr>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar</td>
<td>Provides carbohydrate (food) for the flowers</td>
</tr>
<tr>
<td>Acidifying agent</td>
<td>Flower stems take up water better at low pH (3.0-5.0). Acidifying agent lower the pH of solution</td>
</tr>
<tr>
<td>Stem unpluggers</td>
<td>Microbes (bacteria and fungi) grow rapidly in vase water. These microbes clog the “plumbing” of the flower stems and impede the water uptake. Stem unpluggers keep the vase water clean and stems free flowing</td>
</tr>
</tbody>
</table>
Importance of Correct Dose

• Correct dosage is important for best performance of flower food

• Both under- and over-dosing reduce the effectiveness of flower food
Importance of Correct Dosing!

0%  25%  50%  100%
BACTERIA AND BOTRYTIS
Why sanitation is important

- Bacteria clogs stems.
- Clogged stems lead to hydration problems and bent neck.
- Bacteria produce ethylene.
- Fungi are opportunists.
- The effectiveness of all postharvest products is dependent on a clean environment.

Fungicide, bactericide, cleaner is needed.
Industrial Cleaner

- **Disinfect, Clean, and Deodorize**

- Use on flower buckets, vases, counters, tools, work surfaces, coolers, shipping & packing areas

- Reduces bacterial growth which harms flower stems which reduces flower vase life

- Major advantage is the persistence of the disinfecting effect or “residual activity” compared to chlorine bleach

- No rinsing needed (ease of use)

- Will not stain clothes and has a pleasant smell

- Scrub items with solution and let soak for 5-10 minutes

- Can be dispensed with dosing unit
• Cut flowers were stored in vases for two weeks.
• Water was discarded.
• One vase was not washed. One was washed with water. One was washed with D.C.D.®
• Flowers were put back into vases with clean water only.
<table>
<thead>
<tr>
<th>Bucket Treatment</th>
<th>Relative Bacterial Counts</th>
<th>Relative Fungal Counts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floralife D.C.D.™</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Clorox®</td>
<td>389</td>
<td>38</td>
</tr>
<tr>
<td>Water</td>
<td>889</td>
<td>560</td>
</tr>
</tbody>
</table>

High Bacterial Counts = Dead Flowers
Botrytis is a fungus that attacks damaged, dead, and dying tissue
Also called “Grey Mold”
Spores need a liquid film of water to germinate
Spores are ubiquitous!
Botrytis Prevention

- Temperature management
- Reduce or eliminate temperature fluctuations
- Proper sanitation
- Removing grower sleeves from bunches
- Avoid wetting the flower heads
Treated vs. untreated roses

“Freedom” rose

Control

With Transport Paper
Ethylene – What does it do in plants?

- Growth Promotion
- Flower Initiation
- Fruit Ripening
- Flower, leaf and fruit drop (Abscission)
- Flower and Leaf Senescence (death)
Ethylene Sensitive Cut Flowers

- Carnations
- Delphinium
- Roses (some varieties)
- Alstroemeria
- Snapdragon
- Lily
- Stock
Carnation

070W0506
EthylBloc Sachet Test
Day 10
‘Yoder Mist’ Mini Carnations

Control

EthylBloc Sachet

STS
Delphinium

070W0506
EthylBloc Sachet Test
Day 10
‘Sea Waltz’ Delphinium

Control

EthylBloc Sachet

STS
Roses

‘Clear Ocean’ Rose

Control  |  EB Gas  |  EB Sachet

‘Charlotte’ Rose

Control  |  EB Gas  |  EB Sachet

(Source: Andrew Macnish, Ria Leonard, Amy Alexander and Terril Nell, University of Florida)
Ethylene Sources

- INTERNAL
  - Flowers/Fruit generate their own ethylene as a hormone
- EXTERNAL -
  - Other flowers
  - Fruits & Vegetables
  - Bacteria
  - Burning Organic Material
  - Cigarette smoke
  - Propane heater or truck fumes
Customer Care

• Educate your staff to educate customers on how to take care of their flowers

• Inform them as to what to expect from individual varieties

• Give your customers at least 10 grams of flower food and explain the importance of properly mixing
  ○ 10 grams makes only 1 quart of solution
  ○ 5 grams makes only 1 pint of solution

• Sell flowers by variety or cultivar names
Education Resources

FloraLife®
The Art of Flower Care

Floral Care and Handling

- Sanitation
- Hydration
- Storage
- Flower Food
- Ethylene
- Water Quality
- Rose - Care & Handling
- Potted Plant - Care & Handling
- Fresh Ways to Peddle Your Petals
- 5 Steps of Fresh
- Quick Tips for Healthier Flowers

FloraLife®
Experts in Flower Care
Questions?

Email: sdaum@floralife.com

Handouts are available at:
FTDi.com/FTDUniversity/WebinarMaterials

Webinar will be available to view at:
YouTube.com/FTDMercuryNetwork