Postharvest biology & technology of cut flowers

Short Course
Postharvest Biology and Technology of Horticultural Crops
Sarajevo, Bosnia-Herzegovina,
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Factors affecting the life of cut flowers

- Species and variety
- Temperature
- Water relations
- Ethylene
- Diseases
- Food supply
- Growth & development
Sell better cultivars
TEMPERATURE

Lilies stored 5 days, 2 days in vase life room
Water relations

• Failure in water relations
• Water uptake < transpiration
• Xylem occlusion
  – Emboli
  – Hard water
  – Bacteria
  – Physiological plugs
Maintaining water supply

Use a preservative
Clean *white* buckets

The simple question:
Would you drink *that* water, from
*that* bucket?
Ethylene
1-MCP prevents ethylene damage
Other growth regulators

• Gibberellins retard leaf yellowing
• So do cytokinins
• Including TDZ (thidiazuron), a non-metabolized cytokinin
Effects on cyclamen
Disease

• *Botrytis cinerea*
• Grey mold – watch for condensation
• Spores accumulate on:
  – Dead plant materials
  – Cooler walls
  – Evaporators
Food

• Flowers need food to grow and develop
• Sugar (sucrose, glucose, or fructose) provides all that is needed
• Vase solutions should contain 1.5 – 3% sugar
• Bacteria like sugar too – use a bactericide
Food
Continued growth

• Gravitropism

• Phototropism
Postharvest Handling of Cut Flowers and Potted Plants

The marketing chain—
- Selection
- Collection (harvest)
- Grading (bunching)
- Sleeving
- Pretreatments
- Packing
- Cooling
- Distribution
First Red Roses
Selection

- Maturity
- Bud harvest vs. Open flower
Collection (Harvest)

• Time of day
• Harvesting tools
Attention to disease!
Temperature management at harvest
Grading

- Quality parameters
  - maturity
  - flower number
  - stem length
  - proper size
  - stem straightness
  - shape
  - uniformity
  - weight?
Bunching and tying

- 5’s, 10’s, 20’s, 75’s
- Uniformity
  - Maturity
  - Size
- Tied at top and base
  - String, wire, elastic bands
Sleeving

- Sleeves protect
- Separate product
- Paper or plastic
- Mechanical aids
Pretreatments

- STS or 1-MCP
- Sugar (20%) for spike-type flowers
- Gibberellic acid, BA, Thidiazuron
  - leaf yellowing
- Napthyl pthalamic acid?
Packing

- Product should be secure
- Pack to allow cooling
Banding
Cooling

• Forced air for cut flowers
Good packing = good cooling

Less paper, helps air flow

Space – better cooling, and protection
QUESTIONS?