



Anil Ranwala, PhD.
Chief Scientist

Floralife® TransportCARE™ Paper test results after use with Alstroemeria Cut Flowers

Background

Floralife, Inc. has recently introduced a product for the floriculture market specially designed and formulated for the intended use of slowing the premature spread of fungal sporulation during the shipment of cut flowers in boxes. The product, Floralife® TransportCARE™ Paper, is a 10" x 40" (102 cm x 25 cm) waxed tissue sheet impregnated with compounds that release chlorine dioxide gas when subjected to a high humidity. Floral shipping boxes are good environments high in moisture for the growth of pathogens. Chlorine dioxide has shown to be effective in slowing the spread of fungal disease spores.

The sheets are designed to be utilized in fresh cut flower boxes at the grower farm level during packaging. The treatment then takes effect during the time of shipment to the customer, helping protect flower stems and reducing the spread of spores.

Among the post harvest diseases in fresh cut flowers, gray mold caused by the fungus *Botrytis*, is a major cause of quality loss. *Botrytis* is a major contributor to the shrink, or waste, of fresh cut flowers. Many types of cut flowers including roses, gerberas, chrysanthemum and alstroemeria are susceptible to this disease. Flower petals, leaves, and stems can all be infected by this fungus. Visual signs of infection first appear as patches of browning, then the infected tissue quickly dies resulting in severe loss in flower quality.

Research

An experiment was conducted to test the effects of Floralife® TransportCARE™ Paper treatment on five varieties of alstroemeria ('Stratus', 'Mistique', 'Calgary', 'Fuji' and 'Odessa'). Flowers were first harvested at a farm in Colombia, then processed and packed into eight individual boxes under standard conditions for dry shipment. Floralife® TransportCARE™ Paper sheets were then added into 4 of the flower boxes, and left out of the other 4 boxes as the control. All flower boxes were air freighted to The Netherlands for delivery the next day. Flowers were processed and stored in a cooler at 39 °F (4 °C), and then at room temperature for 4 days to simulate a store environment. The flowers were then moved to vases containing flower food for vase life evaluation. The number of flower stems that had visible *Botrytis* symptoms in petals, pedicels, or leaves were determined and recorded on a daily basis.

Results

Percentage of stems infected by *Botrytis* at the beginning of the consumer simulation.

¹ TC = Floralife® TransportCARE™ Paper

	'Calgary'	'Fuji'	'Mistique'	'Odessa'	'Stratus'
TC ¹	24%	0%	33%	14%	0%
no TC ¹	57%	14%	33%	52%	0%

Percentage of stems infected by *Botrytis* on day 7 of the consumer simulation.

¹ TC = Floralife® TransportCARE™ Paper

	'Calgary'	'Fuji'	'Mistique'	'Odessa'	'Stratus'
TC ¹	48%	5%	48%	29%	0%
no TC ¹	62%	14%	76%	67%	5%



Infected Flower



Infected Leaf



'Odessa': Control



**Treated with Floralife® TransportCARE™ Paper
Day 11**



'Mistique': Control



**Treated with Floralife® TransportCARE™ Paper
Day 11**

Conclusions

Floralive® TransportCARE™ Paper was effective in slowing the spread of *Botrytis* spores during the shipping of alstroemerias. It aided in maintaining the postharvest quality of flowers. The benefit of the treatment will vary dependent upon the presence and susceptibility of the variety to *Botrytis*.