





# A Sea Change in Transportation

As shipping costs rise, can sea transport provide some relief — and will it change how we do business?

BY BRUCE WRIGHT

**W**hen Hurricane Irma hit Florida in September 2017, the impact on local residents and businesses was devastating and immediate. The most powerful Atlantic hurricane on record, Irma flooded cities, felled trees and power lines, and triggered the largest evacuation in U.S. history.

But Irma also had wider, if more remote repercussions. Among them, the storm may have served as a pivot point in the floral industry's slowly mounting transportation crisis.

"Before Irma, the pressure was already being felt," said Christine Boldt, executive vice president of the Association of Floral Importers of Florida. Airlines had begun to charge much higher rates to bring flowers from Colombia and Ecuador into Miami. Those cargo routes had become more costly for the airlines — for reasons that had nothing to do with flowers, or even with the price of jet fuel, and everything to do with macroeconomic trends (more on that in a moment).

The core of Hurricane Irma bypassed Miami. Nonetheless, service from the airlines was interrupted for two days, causing a backup in flower deliveries.

"When they

came back, the airlines said, 'We're not going to provide as many flights, because we don't have enough cargo going south,'" Boldt continued. "It was the perfect time for them to make that excuse — the perfect storm."

Suddenly, flights that would take flowers as cargo were not only more expensive but also there were fewer of them. Shippers who had previously struggled with the higher rates began to look around for alternatives. One option jumped to the fore: sea freight.

### **Hanging in the Balance**

Sea transport has long dominated the global shipping of perishables such as produce and fresh fish. Until recently, however, it has played a much smaller role in the cut-flower market. Even today, it represents only a small percentage of the total for cut flowers and greens — probably somewhere between 2 percent and 5 percent.

Still, it's growing: Asocolflores, the Association of Colombian Flower Exporters, reports an increase of 177 percent in exports by sea freight over the past five years, as measured in tons of flowers, to all markets.

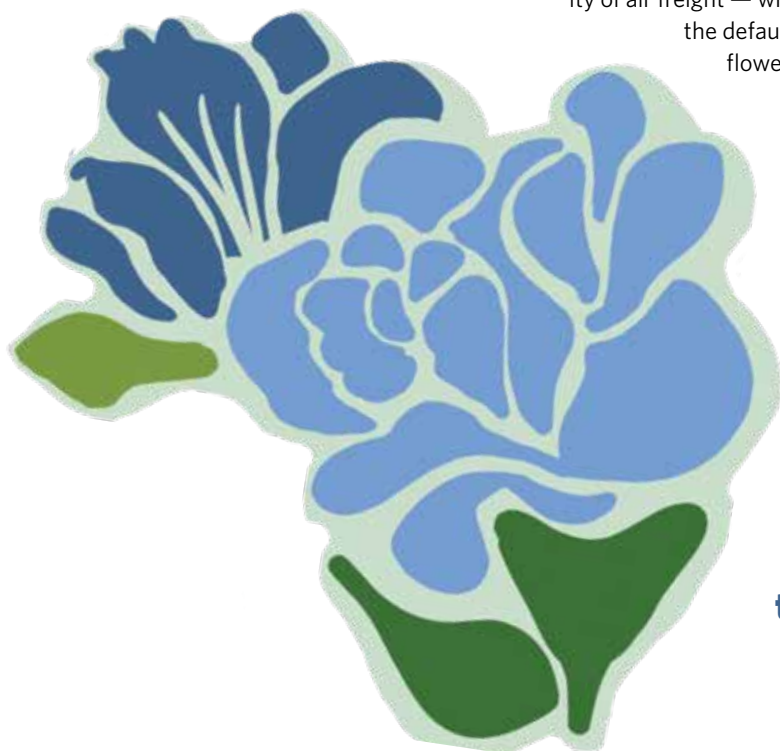
Part of the reason for that growth relates to changes in the cost and availability of air freight — which has provided the default means of getting flowers from farm to

florist ever since the U.S. floral industry began to rely on year-round imports from South America. Indeed, it remains so for the flower trade worldwide, from South America or Kenya to markets in Europe, China and Japan.

It was only when the price of air freight began to rise dramatically in recent years — and when cargo space became scarce at holiday times, straining the system and putting quality and freshness at risk — that more flower shippers began to look at sea freight as an option.

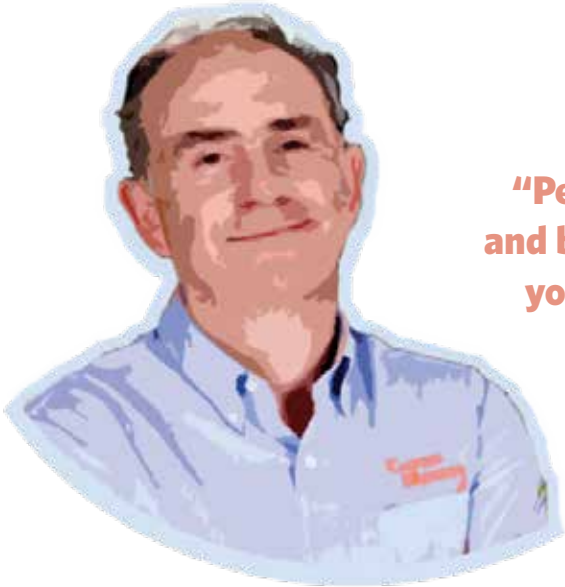
The current supply chain from South America works like this: When flowers produced in Colombia or Ecuador are flown into Miami, they can be flown at a reasonable rate only by paying for one-way transport. That same airliner's southbound flight is paid for with cargo headed from the U.S. to a variety of destinations in South America. (Much of that southbound cargo, in recent years, has been electronics, including smartphones.)

With 212 million people, Brazil has been the biggest importer of U.S. products on the continent. Venezuela has also been a significant export market for U.S. goods. But in the three years leading up to 2017, Brazil was hit with an economic crisis that caused severe unemployment and a plummeting GDP. Over an even longer period, Venezuela's economy has been in a state of total collapse.



**"The big challenge is that our industry is so segmented that nobody knows about what goes on outside their segment. Flower buyers need to understand that the prices we're selling for are not increasing enough to make up for all these added costs. There is no place to squeeze any more."**

—Christine Boldt, Association of Floral Importers of Florida



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—Felipe Sanchez, CargoMaster

“Once Brazil went to crisis, the rates on the northbound flights had to go up,” said Felipe Sanchez, founder of CargoMaster, an international cargo agency based in Bogotá (and specializing in cut flowers) that was acquired earlier this year by the Swiss company Panalpina. Within the past five years, he estimated, rates from Bogotá to Miami have increased by as much as a third.

Rates are especially high at Valentine’s Day and Mother’s Day. Airlines have always levied a surcharge leading up to those major holidays, starting perhaps 10 days before the holiday, according to Tim Dewey, group vice-president of procurement, e-commerce, marketing and quality for the Delaware Valley Floral Group in Sewell, New Jersey. In the new, supply-driven climate for transportation services, the surcharge is starting earlier, three weeks before the holiday (and before the high volumes really kick in) — a move that represents an increase in freight costs of about 30 percent.

Meanwhile, on the ground, a driver shortage is putting pressure on trucking companies as they compete with the ever-increasing volume of parcel deliveries by UPS and FedEx, thanks to the “Amazon effect” (see “On the Road,” page 26).

## Ramping Up

Sea transport of cut flowers and greens is not new. Piggybacking on infrastructure deployed for other perishables, shippers have long used ocean freight containers to move cut greens from

Costa Rica and Guatemala to Miami — a relatively short, three-day trip.

CargoMaster started shipping flowers by boat 12 years ago, from Colombia to Europe — no less than nine to 15 containers a week, according to Sanchez. Seven years ago, the company launched a sea freight program from Ecuador and Colombia all the way to Japan.

Experience with these longer distances taught CargoMaster that not all flowers travel well by ship. In general, it is the hardier flowers — carnations, chrysanthemums, alstroemerias — that are the best candidates for sea freight. Within those categories, some varieties do better than others. CargoMaster ships other colors of carnations to Japan, for example, but not reds, which can lose 30 percent of their color intensity on such a long trip.

In the case of roses, reds can be shipped via sea freight from Colombia or Ecuador to the United States without compromise of quality. Indeed, it’s not unlikely that the red roses in a Valentine’s Day bouquet might have traveled by sea. But if you purchase more delicate white roses for Mother’s Day, they will probably have come in by air.

## How Does It Work?

Can flowers really travel by sea and arrive just as fresh as they do coming off a plane? How is that possible, when the sea trip from Colombia to Miami takes three days, versus three hours by plane — and the entire trip, including the time it takes to truck the flowers from the in-

land city of Bogotá to a seaport, can take as many as six or seven days?

The key factor, as in the quality of fresh cut flowers generally, is the cold chain. When flowers travel by air, temperature fluctuations are inevitable, both within the airplane’s cargo hold and as the flowers are loaded and unloaded. Small fluctuations can be tolerated because the trip is relatively short.

In contrast to the cargo hold of a plane, a sea freight container is essentially a very large refrigeration chamber, equipped with a particularly effective, forced-air, bottom-up type of internal cooling system, according to Steve Daum, director at the postharvest-care company Floralife, which has been conducting extensive research into sea transport.

“The ocean freight container is very effective at sucking heat out of a box of flowers,” said Daum. “It maintains a static temperature. You can adjust the relative humidity, even the air exchange in some of these containers. It’s not a bad way to store flowers.”

In fact, at holiday times — when at least some flowers have to be cut earlier than usual and stored a few extra days to meet demand — sea containers can actually fill a gap in industry logistics, not just for transport but also for storage, said Boldt: “The container functions as a temperature-controlled facility. So if product needs to be stored, instead of being stored at the farm or in Miami, it can be moving on a ship while the holiday volume is trying to come in.”

## Quality Considerations

Sea shipping requires strictly enforced protocols, said Daum. Measures that restrict the growth of bacteria and fungi must be carefully observed; the containers must be sanitized; the flowers must be properly precooled. These are the same precautions that should ideally be observed with air freight, but the risk is greater when flowers are shipped over a much longer timeline, even at a consistently low temperature.

When everything is done right, however — and taking into account that only some flowers and varieties, not all, are candidates for sea shipping — the results in terms of freshness can be impressive.

“For me the biggest value of sea freight is the quality of product,” said Sanchez. “There is less handling of the flowers, and you’re keeping them at 1

C, 35 F, all the way through the trip. So you’re really respecting the cycle of the flower. We see that when product arrives by boat, the vase life can be three, four, or five days longer than by air.”

Experts agree that when flowers travel by sea and everything is done right, quality outcomes at least meet industry standards. For most shippers, however, the deciding factor is cost savings, driven by the recent rise in the cost of air freight. And sea transport does involve risks — risks that can bring the cost savings down.

## Size Matters

The first big difference between sea freight and air freight is the timeline required to get flowers from there to here. The second is the size of the shipment. Sea containers are 40 feet long. That’s a lot of flowers.

“If you load a 40-foot container with roses, it’s a huge risk if you don’t know what you’re doing, because the value of the shipment is \$80,000,” said Terril Nell, Ph.D., AAF, research coordinator at the American Floral Endowment, a former SAF president and professor emeritus at the University of Florida.

The risk stems not only from the need for extra-scrupulous attention to precooling and other procedures to protect quality, both at the farm and when flowers are unloaded. There is also the ever-present risk that when a shipment arrives in Miami, U.S. customs inspectors will find a proscribed pest in one of the boxes. When that happens, they can require that the entire shipment be fumigated.

The inspectors do have some leeway. As Dewey explained, with air freight, if a shipment includes 15 different products from 15 different farms, and the inspec-

# On the Road

Unsung heroes, truck drivers are a lynchpin in the flower business, as in just about every business sector. They are also a disappearing breed.

“The younger generation does not want to drive an over-the-road vehicle,” noted Laura Shinall, president of Syndicate Sales. “The driver population is aging out. Syndicate has a wonderful stable of drivers, but we don’t know how much longer we can hold onto them.”

Salaries have not kept up with the increased demand for truck drivers, who do a physically taxing job that puts a strain on family life in an era when both parents typically have to work to make ends meet.

But lately it has been difficult to hire a truck driver at any price. Aside from changing cultural expectations, another reason is the “Amazon effect”: e-commerce has sent UPS and FedEx scurrying to keep up with demand for home delivery. Not only are there more packages being delivered all the time, but expectations for timeliness continually escalate.

“As we try to provide the increased service, it increases costs,” said Shinall. “We can be as efficient as possible. But the bulk of those costs are way beyond our control.”

Yet another factor: In December of 2017, regulations went into effect that require drivers to limit their hours on the road, with enforcement from electronic logging devices (ELDs). The new rules make the roads safer, but they inevitably drive up costs. The rules can also affect the quality of service by restricting the routing options available.

For a floral transportation company like Armellini Logistics, which delivers shipments from Miami importers to wholesale florists across the country, these challenges come on top of another one: “Over time, as the mass market gets stronger, wholesaler volume tends to shrink,” noted company president David Armellini. Deliveries of fewer flowers are stretched farther apart.

In the past, the company has been able to maintain the same level of service by realizing efficiencies. But with the driver shortage, they might have to squeeze the same load

tors find an illegal bug in just one box from one of those farms, they are likely to isolate the products from that farm — not the whole shipment.

But with sea freight, because all the products have been held together within one container for a much longer time, inspectors are more likely to require fumigation of the entire container — a factor that significantly increases the risk of shipping by sea over shipping by air.

The risk is multiplied for consolidated shipments that are shared by smaller players: One partner's bug means fumigation for all. And fumigation is never good for flowers, especially when they are coming off a long ocean voyage.

That's just one reason why the ideal scenario for sea transport is to fill a container with flowers of one type, from one location, so that all quality control factors are managed in the same way. Only the biggest shippers can manage such volumes. Usually they are on the mass-market side of the industry.

onto six rather than seven drivers — “not just from a dollar standpoint, but physically because we don't have the drivers, which could mean delays to certain customers.” Over time, Armellini estimated, “In certain markets where we now serve six days a week, we may have to cut back to five.”

Are there solutions? Providers of trucking service to the floral industry say one thing that would help a lot would be if flower boxes came in standard sizes. “It's like a puzzle trying to load our trucks,” said Armellini.

But while box standardization could make loading and unloading of trucks and storage coolers far more efficient, saving time and money, there's a hitch: “Typically the rate shippers pay to an airline is triple the transportation rate by truck,” Armellini continued, “so box sizes tend to accommodate any efficiency realizable with airline cargo space. As a grower, your main goal is to save on airline freight costs.” Maybe standard boxes could save 10 percent on trucking costs, but using non-standard boxes saves 10 percent on airline freight cost, by fitting more boxes into the same cargo hold. The airline wins out.

**“As a wholesaler, we're basically taking orders today for delivery tomorrow. The industry has evolved into a very last-minute business.”**

—Tim Dewey, Delaware Valley Floral Group

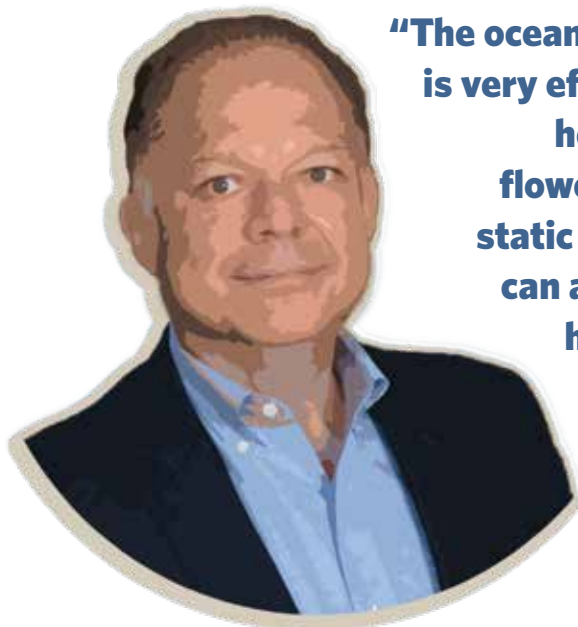


If wholesale florists are fewer in number these days and more spread out, increasing delivery times and costs for a company like Armellini, their wholesale customers face a similar challenge.

How much does it cost a wholesaler to make a delivery to a retailer? “A lot more than we charge,” said Tim Dewey, group vice-president of procurement, e-commerce, marketing and quality for the Delaware Valley Floral Group in Sewell, New Jersey. Like most wholesalers, Delaware Valley will deliver free if the customer orders over a certain amount; otherwise, there is a nominal charge that does not cover the real cost.

“We built our system trying to meet traditional expectations of late ordering and early delivery, within a two-hour time frame, but it gets tougher and tougher to do that,” Dewey said. One bright spot: Having tried several routing systems, the latest one seems to be helping by alerting the managers at each of Delaware Valley's eight distribution centers to which routes are sustainable and which ones are not.

—B.W.



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### Shipping Mode Changes

To gain more than a toehold in the overall picture for cut-flower transport, sea transport will necessitate some big adjustments in practices and infrastructure. “People who are going to use this technology need to recognize it will be a long-term relationship,” said Daum.

“For example: Let’s say you are a rose farm that’s been shipping by air, and you want to add the ability to ship by ocean during peak times,” said Daum. “You need an additional cooler, because the cooler you’re using for air freight fluctuates too much in temperature as the doors are opened all day long. The new cooler needs to be kept at 0.5 C and have a dock that seals.

“Plus, your scheduling has to change. The roses you are shipping by sea need to be harvested eight days earlier than roses shipped by air. Now you’re running two farms: one for air freight and one for ocean shipping.” Sanchez agreed with that assessment, adding that some crops, like spray chrysanthemums, have to be planted earlier to be ready for harvest on the schedule required for ocean shipping.

By the same token, when those adjustments can be made, they bring returns, said Sanchez: “People have learned that when you ship by boat and book your boats and containers ahead of time, you can program your crops and take a lot of the pressure off flowers for the peak seasons.”

While others emphasize that sea freight is most competitive at peak holiday times, Sanchez sees the current market for sea freight dominated by those who commit to it and use it on a regular basis: “It’s very structured: They crop, they plant ahead of time. Then they have value not only on cost, but also on taking control of the cycle of product and cycle of selling.

“The companies we work with that are successful with sea freight have a culture where everything adds up: planting, cropping, temperature con-

trol,” Sanchez continued. “They have the volume to fill a container one, two, or three times a week.”

With rare exceptions, he said, these are players in the mass market. It’s not only that these players can command much bigger volumes. It’s also in the nature of the mass market, with a higher focus on everyday, recurring sales and proactive marketing.

These same players, he observed, insist on purchasing flowers at low cost — effectively shutting off the option of raising prices as a way of responding to the rise in shipping costs. “The cost of landing flowers in the U.S. has gone up,” he noted. “You see farms struggling in Colombia, but they have to stick with the price that supermarkets demand. So people start looking for options.”

Indeed, over the issues surrounding sea transport looms the twinning relationship of high volume and low price. To receive flowers shipped by sea container requires a very large warehouse.

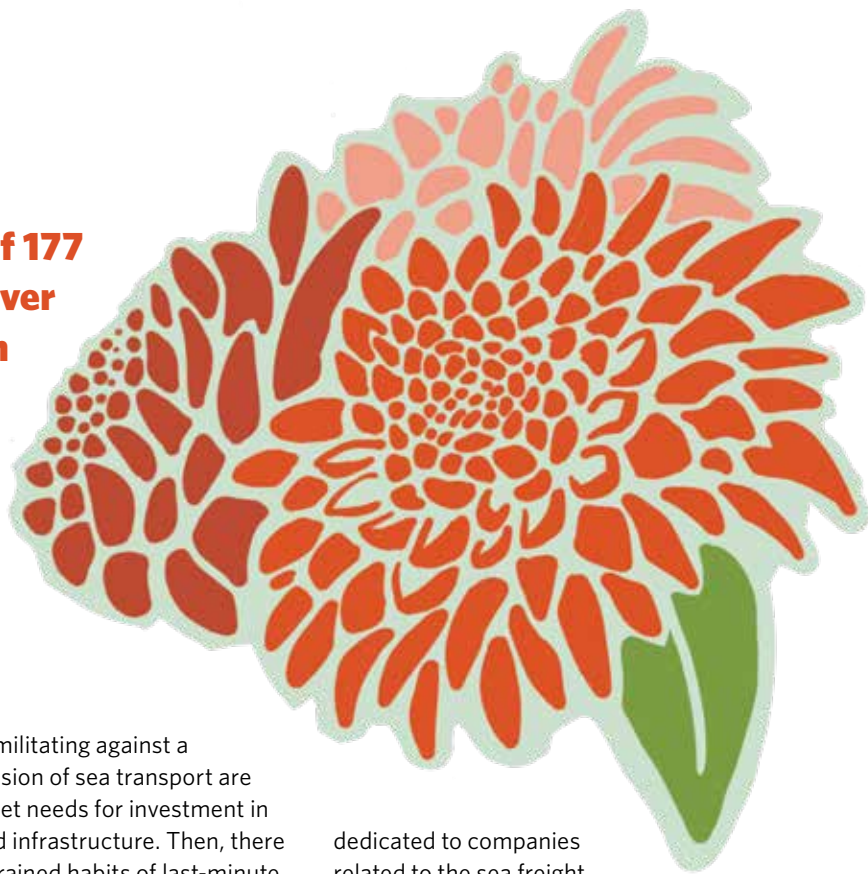
“Let’s say I’m a wholesaler bringing in gypsophila, and I already have a cooler filled with 300 boxes of gypsophila,” Daum theorized. “And now a container shows up with 900 more boxes. What does that do to the price of my gyp? Do I have to lower the price of my gyp to move now 1,200 boxes? Any savings that I have, did I just lose?”

### WHAT ABOUT CARBON FOOTPRINT?

A third substantial difference between air freight and sea transport, along with the timeline and volumes required, is carbon footprint. Felipe Sanchez estimated the carbon footprint of air freight to be three or four times that of sea transport. Terril Nell, Ph.D., AAF, agreed that the carbon savings from shipping by sea could be in the neighborhood of 60 percent. Read more about this consideration at [safnow.org/moreonline](http://safnow.org/moreonline).



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### How Big Could It Get?

In 2018, CargoMaster shipped for Valentine's Day "maybe 10 containers, for Mother's Day 53," said Sanchez. "This year it was 154 for Valentine's, for Mother's Day 180. So, it's a huge growth, even though, when you compare those amounts to what the air freight does, it's not more than maybe 2 percent."

The recent, overall growth at Valentine's Day and Mother's Day is difficult to track, said Daum, but may have jumped by a factor of three to five: "Before you might get 70 containers for the holiday, now you're getting over 500. People are cautious. There's still a strange factor that some people don't like to admit their flowers are coming by ocean freight for the holiday.

"But we have noticed that some importers are now bragging about it," he continued. "Yes, we are shipping by ocean; we have the infrastructure; we have the coolers." They are also asking Floralife for help with the complex logistics of making sea transport work.

Cost being the driver, the future of sea transport could depend in part on what happens with air freight. It's at the peak holiday times, when air freight rates go up, that ocean freight really becomes a bargain, noted Daum, with savings between 30 percent and 50 percent, depending on the crop.

If the cost of shipping by air were to fall again — say, by 15 percent — interest in sea transport could likewise take a big dip, said Sanchez. "Some will want to ship for the holidays, but it will not stick for the daily or weekly progress."

Always militating against a major expansion of sea transport are the still unmet needs for investment in research and infrastructure. Then, there are long-ingrained habits of last-minute buying, and the difficult-to-overtake idea that faster always means fresher.

"As a wholesaler, we're basically taking orders today for delivery tomorrow," said Dewey. "The industry has evolved into a very last-minute business."

"Most perishables are shipped by boat," noted Sanchez — but not flowers. "Flowers are more fragile, but it's more the culture of how people buy flowers that makes the difference. Fifty years ago, probably all the flowers in North America were sold by wholesalers who sold to retailers. The supermarket industry has changed that, so you can program more than we did before" — but even within the mass market, standing orders can be subject to last-minute changes in the mix of colors or flowers.

"Once it breaks, [sea transport] may break in a big way," said Dewey. Measured against the recent increases in air freight and truck freight, "The cost savings are big. If it breaks, it will be good for the industry, but it takes a lot of change and planning."

It's clear there is a need for information and resources relating to sea transport. In response, the organizers of the Colombian trade fair Proflora have announced that this year's upcoming edition of the fair (October 2-4 in Bogotá) will include, for the first time, a booth

dedicated to companies related to the sea freight chain, including Panalpina.

### Let's Talk

Sea transport may not get much bigger than it is today. "I don't think it will overtake air freight in the near future," said Daum. "But I think it will become part of how we do things."

What it does do, like any new technology or strategy, is challenge old assumptions and stimulate new conversations. Industry leaders concerned about the intensifying challenges of flower transport have expressed the need for industry education and awareness.

"The big challenge is that our industry is so segmented that nobody knows about what goes on outside their segment," said Boldt. Whether it's by air or by sea or by truck, the logistics of transporting flowers is changing — and costs are rising. Sea transport may help to alleviate some of that pressure, she said — but probably not enough: "Flower buyers need to understand that the prices we're selling for are not increasing enough to make up for all these added costs. There is no place to squeeze any more." 🌸

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