

CHAMPAGNE





# Gather ye rosebuds

In this industry, material handling  
at the plant level means attention  
to one blooming shrub at a time

BY MONICA ELLIOTT

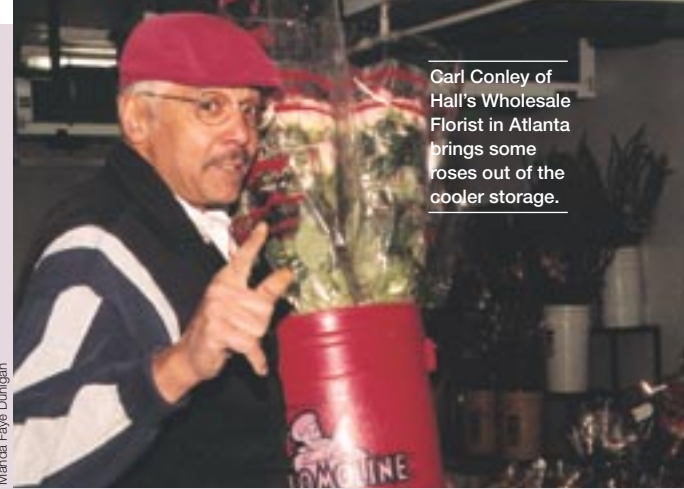
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Material handling in the rose business is no different than it is for any manufactured product — any manufactured product that is fragile, perishable, requires near-freezing refrigeration, and is subject to rocketing demand one day a year. Roses aren't widgets that can be left waiting in an abandoned warehouse, after all. They demand almost constant care and attention, especially if they are to meet the scrutinizing eye of a final recipient who may deduce volumes of intentions from the delicate blooms.

In addition to making sure the blooms are flawless by the time they reach the final consumer, rose producers are challenged with ensuring they have enough product to meet the peak Feb. 14 demand. The crops have to overcome factors as elemental as weather and pests, and then be successfully maneuvered through air and ground transit before reaching their final destination. Although it sounds harrowing, a rose through any other channel may not smell as sweet.

## The cold chain

Roses are delicate and highly perishable, so maintaining their quality, even in a stable environment, is a challenge. Moving them through a supply chain via an intricate transportation network presents an even greater challenge. Add the fact that the majority of roses purchased in the United States are grown in South America, and you've got one heavy logistical assignment — a supply chain that stretches across countries from growers to importers to wholesalers to retailers before reaching the final customer.



Marcia Faye Dunigan

Carl Conley of Hall's Wholesale Florist in Atlanta brings some roses out of the cooler storage.

“Flowers are the most perishable agricultural item that there is — even more so than fish,” says Mike Lancey of Eden Floral Farms, a cut flower grower, importer, and distributor that has an advanced care and handling facility in Miami. As is true for many agricultural products, temperature is the most important factor in prolonging the freshness of roses. Maintaining low temperatures throughout post-harvest handling is so important that the process is commonly referred to as the cold chain. For optimal quality, roses must make their journey through the supply chain under a constant temperature of 33 to 36 degrees Fahrenheit, according to most experts.

“Temperature in roses is the most important factor for quality,” says *FloraCulture International* magazine Editor Debbie Hamrick. “That’s what we’ve uncovered so far, according to research. The more you’re able to modify the temperature of the cut rose, the better base life you get. You want it really chilly



The landscape of a floral farm in Ecuador

and you never want it to go up or down.”

According to Lancey, keeping the roses at near-freezing protects them from the effects of ethylene gas. Ethylene, which is released by the natural ripening process of some fruits and vegetables, causes cut roses to age rapidly.

At the best farms, the roses are placed in coolers within minutes of being cut, and the best producers transport their roses in refrigerated compartments in airplanes and trucks. The best wholesalers have coolers to hold the flowers until they are picked up by or transported to the retailer. However, as in every industry, some producers deviate from best practices. Not all facilities have coolers, and not all trucking and airfreight companies have refrigerated trucks and planes. Such lapses in refrigeration can have a very negative effect on the quality of the product.

“Manufacturing varies all over the board,” says Hamrick. “Some people cut corners here, other people cut corners there. [Someone] might say, ‘Oh, I cut the roses two days ago.’ Well that doesn’t mean anything if they were held at 85 degrees.”

Janna Neetz is a marketing specialist for Greenleaf Wholesale Flowers, a division of the largest rose producer in the United States — Kitayama Brothers. She adds that retailers are often not educated about the importance of temperature control. “I have visited many of the flower shops within our chain of customers, and they are not aware at all of what the temperatures are supposed to be. In fact, if you tell them that they’re supposed to be down to 33 and 34 [degrees], they freak out because some of them have got them up to 50 degrees.”

### The rose market

If you find yourself in a florist shop purchasing roses, more than likely these flowers came from a farm in Colombia or Ecuador, according to Lyn Watts of the Association of Floral Importers. The United States Department of Agriculture reports that these two countries in northwest South America exported \$186.8 million worth of roses to the United States in 2000.

The Society of American Florists estimates that imports account for nearly 70 percent of the fresh cut flowers sold in the United States. Hamrick attributes it to labor costs. “Labor is a very significant part of the wholesale cost of cut flower production. Now there are some really good growers in California. The growers in the United States and the growers in South America are not as mechanized as the growers in Europe. The other places of rose production and where you would find the most advancements

Photo courtesy of Scott Jensen

## How long can a rose last?

The life of a rose is a tenuous thing. Just ask Harrison “Red” Kennicott of Kennicott Brothers Wholesalers in Chicago. How long a rose can last? Kennicott admits that it’s harder to gauge than one might expect.

**The spice of life.** “There are differences in varieties, so some varieties have more longevity than others.”

**Begin at the beginning.** “The growers who grow the very best and healthiest roses, those are generally going to keep longer. And then another variable would be the post-harvest handling at the grower level. That’s a very important process from the time the grower cuts the rose until he grades it, bunches it, packs it in a box, and ships it.”

**Cold front.** “The single most important factor in rose and other flower longevity is temperature control. So the closer that the roses are kept to actually freezing, the longer they are going to last. Every degree can make a difference. Research has shown that ... if [roses] are kept at 36 degrees rather than 34, that will make a difference in how long they will last.”

**Dying of thirst.** “One of the biggest reasons that some roses won’t last as long as others is not getting water. So it’s vitally important that when it gets to the consumer, it’s in a condition where it can get water. Usually to optimize that, the rose stem needs to be cut and placed in clear water — and ideally preservative solution — so that water gets up through the stem. Often, roses will die at the consumer level just because water can’t get up the stem, not because the rose is old.”

Kennicott concludes, “That having been said, good roses can very well last a week and give a week’s enjoyment to the consumer, and certainly many of them will last longer.”

These roses are waiting in a cooler to be shipped to the United States from a farm in Ecuador.



Photo courtesy of Scott Jensen

in terms of mechanization of handling of the roses would be in Holland,” she says.

Given the right conditions, roses can be grown throughout the year. Roses produced in South America are planted outdoors in the fall and take about 90 days to mature. Harvest of the Valentine’s Day crop begins in January to allow enough time for the flowers to be transported around the world.

California growers usually time their roses to be cut two weeks before Valentine’s Day. These West Coast crops take about 45

days to mature because they are grown in greenhouses.

To ensure that a large amount of roses will be harvested for Valentine's Day, most farms employ a growing technique called pinching. Pinching is the process of cutting back a crop before flowers develop so that buds will grow more abundantly at a later time.

"Of course, that's a costly procedure and it's a very labor-intensive thing," explains Harrison "Red" Kennicott of Kennicott Brothers Wholesalers in Chicago.

The problem with pinching is that it eliminates crops that would otherwise be available in December. "If flowers are going to come up between Christmas and Valentine's Day, they'll pinch them out ... so that the flowers they think will be ready for Valentine's Day will have more of the plant's resources to grow at the right time. Because of Valentine's Day, it's not easy to find red roses during the Christmas season," notes Lancey.

### On the farm

Harvest and post-harvest methods vary at each farm, but the basic process is the same throughout the United States and South America.

Neetz explains that the right time to cut roses depends on the variety. "Each variety has a little bit different standard on when to cut it because of the way it grows, but they like to get it when it's not really tight and it's a little bit open so it's got a curl to it as you look down into the rose," says Neetz. "But some of them, if you cut them too open, then they blow open really fast." She adds that certain varieties have to be cut tighter so they'll last longer for shipping.

The farm staff wears gloves and specially made sleeves as protection from thorns. They use clippers to cut the flower stems, collect them in a cart, and then place the roses in buckets of sucrose-based preservative solution.

The sooner that cut roses are cooled to a mid-30-degree temperature, the better. In an ideal world, the roses are immediately taken to a cooler near the greenhouse to be chilled before being graded. A rose's grade is based on the flower head size and the length of the stem.

"I think the most popular grades for Valentine's [Day] this year are 70 and 80 centimeters. Those would be considered to be the real long-stem roses. In the U.S. market, we don't tend to like 90- and 100-centimeter red roses much. I don't know if you've ever gone out and tried to buy a vase for roses that are that big, but it's not easy," explains Lancey.

After being graded, the roses are bunched and cut to uniform length. Some varieties are stripped of thorns. The roses are placed in fresh preservative solution and returned to coolers. Stationed inside the coolers, workers pack and seal the roses into ventilated boxes.

Water packing has become a viable alternative to boxing during the past five years, according to Neetz. Buckets with cardboard collars and plastic tops hold the roses in a solution of water and preservative to keep the flowers hydrated. The buckets are strapped and stacked.

At this point, U.S. growers can ship their boxed or water-packed roses to wholesale locations throughout the country. Farms outside the United States fly flowers into the country via Miami.

## Holland:

### THE INDUSTRIAL FLOWER CAPITAL

If you thought Holland was just about tulips, think again. The Netherlands is the third leading supplier of roses to the United States, and it is the leading supplier to Europe. What's noteworthy about the rose business in Holland is how mechanized its handling process is compared to that of other countries.

According to Debbie Hamrick, editor of *FloraCulture International* magazine, growers in Holland are subject to much higher labor costs than growers in the United States, Central America, or South America. To counter those costs, mechanized flower grading machines have been developed that require just one worker to load roses onto a machine that sizes, cuts, and bunches the flowers.

"Labor for all cut flower producing is humongous, but in Holland, to grow any kind of cut flower is so labor-intensive that these machines [even though they] are really expensive ... pay for themselves within several years," says Hamrick.

The supply chain in Holland is nearly identical to the one in the United States. Roses move from the growers to auctions, where they are sold to exporters. Exporters sell them to wholesalers, who sell them to retail florists.

Jennifer B. Broersma-Neujahr is a marketing specialist for S. Zurel & Co., an exporter of fresh-cut flowers based in Holland. The company purchases cut flowers from growers and sells them to wholesale florists and mass markets around the world.

"Products are typically not



stored at our facility very long. The products arrive generally in buckets on trolleys to our facilities in the mornings. We break down the trolleys, pick all of the products for the customer's order, and ship the products back out our door — many times the same evening," explains Broersma-Neujahr.

"Some growers are fully [automated], needing people only to cut the roses and using machines for the rest of the work (grading, sorting, bunching, sleeving, etc.), and other growers still do everything [by] hand," she notes.

One advancement in the industry, according to Broersma-Neujahr, is the way roses are packaged. "Zurel, for instance, was one of the first exporters to develop a special sort of 'sticky box.' Normally, a lot of rubber bands are necessary to wedge products down in the boxes and ensure that they don't shift in transit. However the sticky box sometimes decreases the need for rubber bands altogether. When products are shipped in buckets, they generally have plastic, paper, or a piece of cardboard around them. In addition, the trolley on which the bucket sits generally is wrapped in shrink wrap to provide more protection."

Seeing success in Holland, California rose producers are steadily following suit, increasingly using rose grading machines in their post-harvest process.

## Creeping technology

While rose harvesting remains largely a manual process in the United States, technology is creeping into the handling process for some American growers. A number of California farms make use of grading machines developed by rose producers in Holland.

Debbie Endo, general manager for Westerlay Roses of California, says her company uses a rose grading machine that is capable of measuring, cutting, bundling, and wrapping. "Each single-stem rose is manually hung on a clip that circles the machine," she explains. "The computer scans the rose head and drops the roses into slots by size. It bunches the roses in 25-stem bundles, cuts the bottom evenly, and puts elastic string around the bundle. It drops the bundle into a holding slot, where our worker moves it to a conveyor table that sends it through the wrapping process. The grading machine saves labor in processing the roses and ensures quality control in each bunch."

Another technological advancement involves the growing process itself. According to the California Cut Flower Commission, approximately 30 percent of the roses produced in California are grown hydroponically. Hydroponics is a rising trend in rose production that entails planting the roses in pots with material such as clay pebbles or crushed coconut husk. A computer-controlled irrigation system supplies precise amounts of nutrients and water to the plant roots.

foot than soil-grown plants, consistently higher quality, longer and thicker stems, and for some varieties, a larger bud size.

The quality and longevity of roses begins at the farm level. "They're very careful with them," says Neetz. "I don't know that each farm treats them the same, but overall they have to have similar standards because there is a similar care and handling standard throughout the industry."

One farm in particular has taken the time to record its quality procedures. "Eden Floral Farms is the only company in the flower business that has a quality control manual at the farm level," claims Lancey. "It really details how the flowers should be handled and graded and packed in preparation for our customers. And that's kind of unique. We also hold seminars in South America for our growers. We have experts in quality come and speak to them once or twice a year about different issues that come up. We really consider ourselves to be a company with a quality culture because so much of what we do relates to quality that really it all has to be focused on quality. We hope that one day it'll be the rule in the flower business that everybody follows all the same standards for quality."

## The transportation model

Miami is the hub for about 70 percent to 75 percent of the flowers imported into the United States, according to Lancey. Roses



Manda Faye Dunigan

"It allows the grower to control what's going on at the plant level a lot better. They can control the amount of water they give; they can control the amount of nutrients they give. It's just a better, more technologically advanced production system that gives the person in charge a lot more control over what's happening," Hamrick asserts.

Benefits of hydroponic growing include more flowers per square

Cut Flower Manager Danny Morrow processes some incoming roses at Hall's Wholesale Florist in Atlanta.

arriving from Central and South America enter the United States primarily through this city, where most of the importers are located.

Kerry Dusharm is general manager for Armellini Industries in Miami. "We're a facilitator from the time the product lands in this country. We provide a service that allows the product

to flow through a chain for handling, pre-cooling, labeling ... just allowing the boxes to flow through a system that gets it to the ultimate consumer,” says Dusharm.

The company also serves as a clearance agency, to “domesticate” the product by shepherding flowers through the customs and agricultural inspection processes.

“Before you can pick up anything at the airport, it has to go through U.S.D.A. plant quarantine and it has to clear U.S. Customs,” Dusharm explains. Flower shipments can be put on hold for several hours by either agency for any number of reasons.

The U.S.D.A. opens a sampling of boxes from every shipment to check for insects, diseases, and parasites that may be detrimental to U.S. agriculture. They open one box per farm per product type at a 25-to-1 ratio. “The U.S.D.A. will send out officers based on the number of boxes that have to be shown. In a typical 747 [airplane] that comes in here with 6,000 boxes, there will be 400 boxes that have to be examined. They’ll probably send out 15, 16 inspectors,” says Dusharm.

By the time the flowers have cleared customs and agriculture, they may have spent several hours outside the optimal temperature window, so they are typically sent to a local pre-cooling facility. Such facilities may be little more than warehouses or they may be more sophisticated, incorporating hydrating systems to put humidity back into the flowers after their drying international journey. After several hours, they are ready to be trucked out of the city.

Roses grown in the United States face an easier journey

through their supply chain. They are flown or trucked in refrigerated containers to wholesalers directly from farms. In any case, the flowers cannot be hauled with any other agricultural product such as fruits or vegetables. Ethylene gas emitted by those products would quickly age the flowers.

The wholesaler serves as the middleman between growers and retailers. Each wholesaler handles their products a little differently, but for the most part, the boxes are broken open and the flowers are put in water and preservative solution in coolers until being trucked to or picked up by retailers.

### The end of the line

As sure as love springs eternal, roses are synonymous with Valentine’s Day. Every Feb. 14, flower retailers are swarmed, making that date No. 1 for cut flower purchases, according to the Society of American Florists.

Although rose producers seem to have all their shrubs in a row in terms of technique, there’s always room for improvement. “We haven’t had a lot of outsiders looking at our internal processes,” notes Hamrick. “And if it gets some people interested to just walk into a couple of nurseries and take a look at some of the issues that we’re dealing with and we get some fresh insights, that would be great.”

The rose handling process offers many opportunities for supply chain management and lean production, among other industrial engineering concepts. Although the fruit of these labors is transitory, those fruit are sweet indeed.