

Jeanne Coen: Shipping Almonds

Part One - *Read to the bottom of this page then stop.*

Jeanne Coen barely had time to look through the stack of faxes that had just been put on her desk when one of her coworkers walked up with another stack, fresh off the fax machine. It was going to be a busy day.

Jeanne Coen worked as an International Customer Service Representative for the almond company, Blue Diamond Growers, in Sacramento, California. She had worked at Blue Diamond for 15 years.

Blue Diamond had been created in 1910 as a “cooperative” of 230 California almond growers. That is, the growers shared management and ownership responsibility for the company. Before 1910, almond growers sold their crops to independent dealers and had to negotiate on their own for a price. They didn’t feel they were treated fairly, so they united to form a bargaining organization called CAGE, for California Almond Growers Exchange, which later became Blue Diamond.

By the late 1990s, Blue Diamond had 4,000 growers as members. The company helped these growers market their almonds to all 50 states and over 90 foreign countries, making almonds California’s largest food export. In 1997, the state of California’s growers had harvested a record 744 million-pound crop of almonds.

Jeanne’s job was to coordinate almond shipments to other countries. Whenever a buyer in India or China or Japan wanted to purchase almonds, Jeanne got involved. She made sure Blue Diamond’s processing plant could fill the order and then arranged to have it shipped to the customer. September, harvest time, was particularly busy, so Jeanne knew she’d have to be very organized.

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Part Two - Read to the bottom of this page then stop.

Jeanne's job was pretty straightforward... most of the time. When she received an order from a customer – usually through a fax – Jeanne would process the order. First she would find out how long it would take Blue Diamond's processing plant to fill the order. Then she would book space on a ship going to the customer's country and arrange to get cargo containers filled with the customer's order from the Blue Diamond plant to the ship.

She would then send a fax or e-mail back to the customer confirming all the details and telling the customer when to expect delivery of the almond order. In addition to processing orders, Jeanne prepared contracts for new Blue Diamond customers, worked with customers' banks to arrange to get payment for their orders, prepared all the documentation needed to export the almonds out of the country, and tracked down these documents when customers needed them.

Even though she followed the same steps with each order, Jeanne had learned that no two orders were alike. There were always challenges to be solved. What if Blue Diamond's plant couldn't produce enough to get the order on the ship the customer had requested? What if the customer had credit problems that had to be resolved before almonds could be shipped? And what happened when Jeanne had to coordinate five to fifteen of these orders a day?

Today, for instance, Jeanne was going to need all her organizational skills. Among the stack of orders she had received that morning were four from buyers in India. The buyers all wanted "Inshell almonds," almonds still in the shell, and all four wanted their orders shipped to Nhava Sheva, an Indian port. Between them, the buyers wanted to purchase over 10,000 bags of almonds. And each, of course, wanted to be first in line to get their order filled and shipped.¹

Jeanne needed to make some calculations. How many pounds of almonds did each buyer want? How fast could the processing plant fill those orders? How many cargo containers would each order fill? She needed to organize a lot of information very quickly.

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¹ Please note that while Jeanne Coen is a real person and this case study is based on her experiences, the four customers referred to in this report are all fictional. Also, many of the details about Blue Diamond's production capabilities are fictional, presented here for the purpose of allowing students to experiment with a spreadsheet.

Part Three - Read to the bottom of the next page.

Jeanne decided to create a **spreadsheet** to track the customers' orders. A spreadsheet is a chart made up of rows and columns in which mathematical information can be calculated and moved around. Jeanne had a spreadsheet program on her office computer; but she knew that if she couldn't get to a computer she could also track the information by hand using graph paper.

Spreadsheets organize information in rows and columns. To keep track of where something is on a spreadsheet, the rows are generally labeled with numbers (1, 2, 3, etc.) while the columns are labeled with letters (A, B, C, etc.) Jeanne decided she would use the rows of the spreadsheet to track information about each of her four customers (called India Almonds, India Grocers, India Hotels, and India Foods). She would use the columns to track each category of information.

But what did she need to calculate? Jeanne decided she would need to track five different things:

Number of bags ordered. The first and most important piece of information she needed was already on each customer's order fax: how many bags of almonds they wanted to buy.

Number of pounds ordered. Blue Diamond shipped inshell almonds in 50-pound bags. To give her instructions to the processing plant, Jeanne would need to calculate how many pounds of almonds each customer had ordered.

Number of cargo containers needed. Jeanne knew a 40-foot-long cargo container could hold 45,000 pounds of inshell almond bags; a 20-foot-long cargo container could hold 22,500 pounds of the bags. How many 40-foot and 20-foot containers would her customers need? Customers could not share containers. Any load that would fill _ or less of a 40-foot container would be put into a 20-foot container.

TURN PAGE AND KEEP READING

Number of shifts needed to fill the orders. Blue Diamond’s processing plant could produce 90,000 pounds of inshell almonds total each day using two 10-hour shifts. If the plant did nothing else but fill these new orders for Jeanne, how many days of work would each order require? *(Please note that this information is just hypothetical, provided to make work on the spreadsheet more straightforward. It does not necessarily reflect Blue Diamond’s actual production capability.)*

The date each order would be ready. It was now Tuesday, September 14th. Jeanne knew the processing plant would be operating 20 hours a day, six days a week during the harvest season. That meant the plant would be processing almonds on Wednesday the 15th, Thursday the 16th, Friday the 17th, Saturday the 18th, Monday the 20th and so on. If Jeanne had the plant fill each customer’s order starting on September 15th in the order in which it had arrived at her desk, on what day would each order of almonds be ready to leave the plant? *(Again, please note that the production capabilities listed here are hypothetical, designed to make work on the spreadsheet more straightforward.)*

Jeanne created a spreadsheet. Then she made the calculations needed to fill it in.

	A	B	C	D	E	F
1	Customer	# bags	# pounds	# 40-ft ctrs.	# days in plant	Date done
2	Name	From order	(# bags * 50)	(# lbs/45,000)	(# lbs/90,000)	(start 9/15)
3	India Almonds	6,750				
4	India Grocers	1,800				
5	India Foods	450				
6	India Hotels	1,350				
7	TOTAL					

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Part Four - *Read to the bottom of this page.*

Jeanne shook her head. Her spreadsheet had showed her she was going to have a problem filling the four India orders.

The cut-off date for cargo containers to be loaded onto the next ship leaving the Port of Oakland for Nhava Sheva was the following Tuesday, September 21st. Only containers that were loaded and able to leave the Blue Diamond processing plant by the end of the day on Monday, September 20th would be able to make the cut-off and get loaded onto the ship.

All four of Jeanne's customers had asked to have their almonds loaded on next Tuesday's ship. But as Jeanne studied her spreadsheet, she realized that at least one of the orders would not make that deadline.

What could she do? By the end of the day, she had to give instructions to the Blue Diamond processing plant; reserve the correct number of 40- and 20-foot containers; book the correct amount of space on next Tuesday's ship; and confirm the orders with her four customers.

How should she prioritize the orders? Should she fill them by size? Or should she attempt to meet at least part of each customer's order? That would mean that all four customers would receive some almonds but might not receive their full order. Which approach would be better?

Jeanne decided to change her spreadsheet to look at different ways to fill the orders. Then she would send instructions to the processing plant.