

Case Study: Pizza Plant Goes All In

[Paul V. Arnold](#), Noria Corporation

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"There's opportunity in poker. ... If Horace Greeley were alive today, his advice wouldn't be 'Go West, young man, and grow up with the country.' Instead, he'd point to that deck of cards on the table and say, 'Shuffle up and deal.'"

– *Lou Krieger, professional poker player and best-selling author on poker strategy*

Did you hear the one about the pizza guy who cleaned up after placing an “all in” bet in a factory version of draw poker?

The guy is sitting with a strong hand, by all accounts – trip Queens with an Ace-Nine kicker. Stand pat, and the odds say he's got the pot. But with ice water in his veins, he tosses in the Ace-Nine and rakes in two fresh cards from the dealer. Twin deuces. Full house. He goes all in. He gets the call, and the chip pile grows. Flip 'em over ... ka-ching.



“The smart approach may be ‘if it's not broke, don't fix it', but that's not what we're all about. We're about ‘it's not broke, but let's make it better,'” says Greg Wilkett, the “pizza guy” in this analogy, whose business card reads vice president of manufacturing

at Jane's Dough Foods, a pizza and dough producer in Columbus, Ohio, and the baking division of the Donatos family of pizza restaurants and retail/grocery brands.

"The data indicated that it would be better. It's not blind faith. It's a calculated move."

Tom Krouse, Donatos' president of expansion brands, chimes in: "You were more nervous than you were letting on."

If so, that's one heck of a bluff.

Wilkett had the cards falling his way when he ditched the petroleum-based lubricants at Jane's Dough Foods' 50,000-square-foot plant in the fall of 2009 in favor of synthetic lubes. Over a four-month period following the conversion, the advantages were apparent – a reduction in downtime and the elimination of catastrophic failures.

But he didn't stand pat. In early 2010, he dumped the synthetics and wound up strengthening his hand with bio-based lubricants. As a result, the house is full. Record uptime is allowing the plant to fill an increasing number of orders and raise capacity utilization into uncharted territory. More than two million pizzas and nearly 15.5 million pounds of dough (both all-time highs) will be made this year.

Good move? You bet.

A Slice of Life in Columbus

Company: Donatos, headquartered in Columbus, Ohio, consists of Donatos Pizza, a 180-restaurant chain and marketer of retail/grocery pizza products, and Jane's Dough Foods, a manufacturer of pizza and dough products. The company had annual sales exceeding \$10 million in 2009 and forecasts nearly \$20 million in sales for 2010.

Plant: Jane's Dough Foods in Columbus. The facility, which opened in 1996 and expanded in 2006, is rated as "Superior" by the American Institute of Baking.

Size: Approximately 50,000 square feet.

Plant employment: The site employs 68 workers, including six in maintenance (one manager, five hourly technicians).

Products: The plant produced 1.5 million topped pizzas in 2009 and is slated to produce 2.3 million in 2010. All total, it produced 10.7 million pounds of dough in 2009 and is forecasted to make 15.4 million pounds in '10. Current capacity is 5 million pizzas and 26 million pounds of dough.

FYI: CEO Jim Grote started Donatos in 1963 while a student at Ohio State University. He bought a Columbus pizzeria for \$1,300. ... Jane's Dough Foods is named after Donatos president and COO Jane Abell, the daughter of Jim Grote.

Dealing With Downtime

The Columbus plant traditionally had been solid in its maintenance practices and performance. While normally staffed by a small number of maintenance department employees, it had knowledgeable veterans in manager Kevin Rine (hired in 1996) and multi-craft technicians Steve Van Horn (1988), Kim Siv (1990) and Homer Ashcraft (2001); talented newcomers Doug Morrison and Derek Zwirner were added in 2008. The crew utilized progressive tactics for preventive and predictive maintenance. Lubrication-based PMs had long been driven by data (run time) and schedule (sanitation cycles). PdM followed an inside/outside approach, with plant maintenance handling the sampling piece of oil analysis, and contractors tackling the laboratory end of that, as well as vibration analysis and infrared thermography.

As a result, unplanned downtime constituted 11 percent of the work day, an adequate total considering the extreme temperatures to which key machinery components were exposed – the dough proofing system operates at more than 100 degrees Fahrenheit and the tunnel freezer registers minus-175. That environment, though, had a tendency to trump maintenance's best efforts.

“Our maintenance record has always been what I would consider ‘good’,” says Wilkett. “We really did have a pretty good preventive and predictive program. But we were having major breakdowns – two or three catastrophic ones where we broke shafts because bearings seized and gears broke. If you go down because of a part you can't readily buy and replace, you may be down for four days.”

If pizzas aren't being produced, orders aren't filled. Increased uptime became essential as a boom in sales required epic productivity.

The maintenance and manufacturing team traced the root cause of the failures to the petroleum-based oils and greases lubricating those critical components.

“We had to have lubricants that could hold up in those temperatures,” says Wilkett.

The plant knew when to hold 'em and knew when to fold 'em.



Vice president of manufacturing Gregg Wilkett is a proponent of really good pizza and bio-based lubricants.

Synthetics Suit Plant Needs

As stated earlier, the next hand that Wilkett and his Jane's Dough colleagues played was synthetic lubricants, beginning in September 2009.

“We acknowledge that better lubrication not only ties into our preventive maintenance and predictive maintenance programs, but it also ties in to better operating procedures and policies – standard operating procedures – which allow us to gain consistency,” says Wilkett. “To run a facility effectively every day, you have to look at everything ... including your lubricants.”

The plant drained its equipment and sumps, purged its inventory, and replaced it all with synthetic oils and greases.



Freshly cut shells move down the production line at the Jane's Dough Foods plant in Columbus.

The benefits were immediate and dramatic. Gearboxes and bearings on the oven and freezer lines weren't failing. Run time moved to previously unreachable levels. The amp draw for the proofer oven's variable frequency drives dropped nearly 20 percent (from an average of 34 amps down to around 28).

"We used thermal cameras and imaging to see what kind of heat buildup we were getting," says Wilkett. "We knew that the bearings were getting better lubricated. We had a real good baseline with the synthetics over a 4.5-month period."

That's when Jane's Dough Foods raised the ante. In February 2010, the synthetics were removed and replaced by bio-based lubricants.

'Consistently Excellent' Pizzas Start at the Columbus Plant



While Donatos has been making pizzas since 1963, it didn't have a central manufacturing plant until 1992. Enter the site and business now known as Jane's Dough Foods. Company executives, particularly founder/CEO Jim Grote, felt development of such a facility was long overdue.

"Jim is a stickler. He is consumed with the consistency of the product," says Tom Santor, Donatos' executive director of marketing and public relations. "In the early

years, he used to work like 100 hours a week. He didn't want to leave because he thought the pizza might be made differently. As we expanded, he vowed to put together a pizza making system. To round this system out, we manufacture our dough at a single site. It's the same flour, the same water, the same temperature, the same yeast. Everything is exactly the same."

The company believes that high levels of consistency and quality make a difference in a very crowded, competitive marketplace.

"Consistency is not the sexiest word in the world, but our customers recognize it," says Tom Krouse, president of expansion brands. "We have everything in place – the team, the facility and the capabilities – to manufacture a product that is consistently excellent. There is a gap in the mass-produced pizza market for quality. The industry is kind of designed around speed first and quality second. Fortunately, the culture of this company is about quality. Quality comes first, and then we add speed to it."



The Columbus plant is on pace to produce 2.3 million topped pizzas this year.

A Royal Flush and Fill

Some may think that Wilkett was gambling with house money (or not playing with a full deck) when he decided to switch the "known" for the "unknown". He disagrees with that sentiment, characterizing the decision as a safe bet and bio-lubricants as a known, mature industrial lubrication option.

"Bio-lubricants are one of the more advanced areas of environmental technologies for manufacturing facilities," he says. "These are high-quality lubricants that perform just like a synthetic."

Bio-based oils were indeed around before the development of petroleum-based oils in the 19th century. They have become the subject of renewed interest with the advent of bio-fuels, the unexpected supply of foreign petroleum and the push for green products.

According to a 2008 report from the United Soybean Board, bio-lubricants can be generally defined as friction- and wear-reducing fluids and semi-solids based on biodegradable and renewable materials. Bio-lubricants do not need to be composed entirely of vegetable oil basestocks. They can be products derived from renewable oils, such as the fatty acids from fats and oils, reacted with synthetic alcohols or polyols to produce esters that can be considered bio-lubricants.

“We more than knew what we were getting into,” Wilkett says.



Maintenance technician Steve Van Horn greases machinery during a PM route.

For production and corporate image purposes, the company had been investigating the application of bio-lubricants for some time before the eventual switch. And, Wilkett and corporate management had a strong “green” background – Wilkett as a degreed environmental engineer who worked in that capacity at Pillsbury in the late 1990s; and chief executive officer Jim Grote as an owner of a Ohio-based butanol production company (former chief operating officer Tom Grote now runs that business). To top it

off, Tom Grote introduced Jane's Dough leaders to colleagues at Renewable Lubricants, a local manufacturer and supplier of bio-based lubes, leading to an exchange of dialogue and information.

When it came down to it, switching lubricants was the right call at the right time for the right size and type of company.

"We are in a unique situation, and it was as if the stars aligned when this came along," says Wilkett. "We are small enough in our capacity to make this happen. If we had been running at 94 percent capacity, I'm not sure we would have done a carte blanche change. But when you are running at 30 percent capacity, you can still treat this like an innovation center. Let's figure all this stuff out before we get to 90 percent.



Bearings get a workout in the pizza plant. The tunnel freezer operates at minus-175 degrees Fahrenheit.

"The companies that I came from were expanding every year. They were adding on to the building because they were constantly running out of capacity. They had co-packers packing. I'm not sure that smart people would pull the trigger on a project like this if they were at 98 percent capacity."

Donatos is also privately held and, as a result (according to plant leaders), can be faster and more flexible than publicly traded, red-tape-laden firms. This was tantamount in the "all in" decision six months ago.

"Do you know how long that conversion would have taken at a blue-chip, Fortune 500 company?" says Wilkett. "A conversion from petroleum to synthetic or from synthetic to bio-based would have taken years. That would have been test-bedded and 'beta sited' to death. We didn't do any of that. We did it in 11 days. We flushed all of the machines and converted the entire facility. We went with Renewable Lubricants' bio-

based products for the bearings, gearboxes, even the spray lubricants that we use every day. We went all in.”

Here are Some of the Cards Up the Columbus Pizza Plant’s Sleeve

According to Renewable Lubricants Inc. (RLI), the supplier of bio-based products to Jane’s Dough Foods, the following oils and greases are among those used at the Columbus, Ohio, plant.

- RLI Bio-Food Grade Gear Oils (ISO 32-460), for gear drives and right-angle gear drive
- RLI Bio-Food Grade General-Purpose Lubricant (SAE 20; NSK H1, H2, H3), for various application
- BPL Food-Grade Bio-Penetrating Lubricant (NSF H1, H2), for close-tolerant areas in order to lubricate and prevent corrosion
- RLI Bio-Food Grade Extreme-Pressure Grease (NLGI #0, #1, #2), high temperature, for food processing and packaging machinery

To learn more about these and other products, visit the Renewable Lubricants Web site at www.renewablelube.com.



Leaders at Jane’s Dough Foods feel that the benefits of bio-based lubes are clear.

Raising the Metrics

Production equipment at the Jane’s Dough plant has not skipped a beat since the flop to bio-based oils and greases. As with the synthetics, there have been no catastrophic failures, no bearing or gearbox failures, no issues whatsoever.

Run time, oil life and component life are obliterating the old standards. Components that typically went 500 hours or 1,000 hours between oil changes are hitting 2,000 and 3,000 hours, and they still haven’t been changed.

“We do oil analysis, and we do see some degradation,” says Wilkett. “After 2,000 hours in the proofer, we are starting to see degradation. We are getting more particulate in the oil. But it is not at the level where we need to change the oil.”

How long can in-service lubricants go? The maintenance crew doesn’t know.

“We are in the run time between failure extension mode,” he says. “What that means to us is, we are letting things fail so that we know how long we can run them. I am either

happy to report or, for this program, unhappy to report that we don't know when it's going to fail because we can't make one fail. We don't know what the baseline is because we haven't had a failure. We have a large gearbox; it runs with an 80-horsepower motor. It has more than 2,000 hours on it, and we haven't changed the lubricant. Typically, the PM cycle on that was 1,000 hours, so we are double the typical PM cycle. It's still not making noise. We use stethoscopes, infrared cameras, etc. – there's nothing to report. I'll call you when we have a failure, but I don't know when that will be.”

This uncertainty has led to the urge to perform maintenance when none is truly needed.

Wilkett says, “The technicians had to get over the fear. They would remark, ‘Are you sure you don't want to change that oil? Do you know that gearbox costs \$21,000?’ Then you get into the mirage mode – ‘Did you hear that noise? Does that feel hot to you?’ – when everything is fine. You try to talk yourself out of caving in.”



Bio-based lubricants have helped drop the plant's downtime to a mere 4 percent.

Stacking Up Chips, and Pizzas

Bio-based lubricants are roughly twice the cost to purchase as petroleum-based products (they are comparable in price to synthetics), but a host of factors make them a better overall deal for Jane's Dough Foods.

“The cost is minor,” says Wilkett. “Failure of high-dollar components, the downtime associated with it, the frustration for your associates – that is the real cost of having a poor lubrication program. If you can get expanded run time between stoppages and you can eliminate your catastrophic or unplanned failures, those are advantages.”

Downtime has dropped to a mere 4 percent. “Right the first time” quality is at 99.8 percent. Case fill is at 100 percent for 2010. And, because production is humming, and existing and new customers are happy, capacity will double this year.

There are other benefits, too.

First, there’s the time and cost associated with the proper disposal or reclamation of petroleum products and items (sorbents, shop rags, etc.) that have come in contact with them. On a related note, Wilkett says that because the bio-lubes are deemed non-hazardous, the regulatory requirements are less complex and less costly from an administrative perspective. The conversion away from petroleum-based lubricants is one reason why the plant hopes to be landfill-free by the end of 2010.

Second, because the bio-lubes have a much wider temperature range than the petroleum products, the facility has been able to consolidate its supply down to just three gearbox lubricants (for low, medium and high temperatures), two spray lubricants (for chains, conveyors, etc.) and two greases (for low and high temperatures).

“For the gearboxes, it’s just straight weight; it’s not based on viscosity,” he says. “Technicians normally like to have seven viscosities of grease and 14 viscosities of lubricant, and they want to have seven different spray cans with different colored lubricants. But it’s not needed anymore. It would be like hauling around a tool box with 30 wrenches when you only need three of them.”

Third, the public sees Jane’s Dough Foods and Donatos more and more as a “green” business. Research shows that an increasing percentage of U.S. consumers prefer to buy from environmentally conscious companies. “Consumers are looking to make the right choices in everything, including what consumer goods to buy from responsible companies,” says Krouse.

Fourth, the next generation of industrial leaders place value in the company’s “green” side. The plant has a close relationship with manufacturing and packaging programs at Western Michigan University and other colleges. “We feel that we can attract these Western Michigan University students to work with us following graduation,” says Wilkett. “We can attract the best talent because we have this philosophy and we have these programs.”

Thinking for a moment, he lays all of his cards on the table. “I think it’s a pretty cool story when you can do something for the environment and the community and have

social responsibility and at the same time create better reliability in your facility. How do you beat that?"

A Winning Hand

This article closes with another quote from poker maven Lou Krieger:

"I believe in poker the way I believe in the American Dream. Poker is good for you. It enriches the soul, sharpens the intellect, heals the spirit and, when played well, nourishes the wallet."

I think if Lou knew the plant floor the same way he knows the casino floor, he would say, "Well played, Donatos and Jane's Dough Foods. Well played."