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COVER STORY: YARD MANAGEMENT



Who's Minding The Yard?

Warehouse yards can be messy at best and chaotic at worst. Technology can help companies better take control over their yards.

By April Terreri

The warehouse yard—the unruly stepchild of warehouses and DCs—is beginning to get the attention it deserves. Although yard management is not exactly a hot topic yet in the boardroom, warehouse and yard managers keenly understand they must banish chaos from their yards so warehouse efficiencies are not undermined. “If upper management knew how yards are managed, they might shake their heads in disbelief,” states Jim Harris, president of Cypress Inland Corp. in Houston.

Yard management does not constitute a dominant portion of overall expenses, so it doesn’t get much attention from senior executives, adds Aleks Gollu, CEO of PINC Solutions in Berkeley, CA. “The fact is, poor yard management could have a huge negative impact on your warehouse operation.”

Beyond the four walls of the warehouse awaits a vast amount of information for improving yard performance. YMS programs collect this information offering visibility, which experts agree is key to yard efficiencies.

The Missing Link

Many companies have nothing more than multiple clipboards or whiteboards and separate, disjointed points for managing yard inventory, says Harris. “Even large operations with hundreds of trailers in their yards often operate manually and disjointedly.”

In fact, a March 2007 report issued by Ian Hobkirk, senior analyst for supply chain at Aberdeen Group, found that of the companies surveyed regarding managing inbound and outbound trailers in the yard, a whopping 58 percent still use a manual system with clipboards and spreadsheets. Twenty-four percent use a yard management system (YMS) not integrated with the WMS; and 12 percent use an integrated system that includes a YMS module of the WMS.

Yards can be messy at best and chaotic at worst. “You definitely need to know where all your assets are at all times,” notes Tim Oglesby, operations and customer service manager for a Kraft Foods mixing center handling refrigerated and dry products in Atlanta.

“If you get a critical product coming in, you want to be able to expedite it. Yard management systems let you know where your products are so you can expedite them exactly when they need to be expedited.”

Most people perceive the yard as separate from the warehouse, notes Mark Nix, vice president of sales for major accounts for Atlanta-based Manhattan Associates. “Prospects tell us one of the biggest problems they want to solve is getting their chaotic yards in order. They are not able to track inventory they need, so trailers and products often get lost in the shuffle.”

Without yard management, you have to contend with dangerous missing links, notes Tom Kozenski, vice president of product marketing for Red Prairie in Waukesha, WI. “Yard management systems support a number of governmental regulations involving accountability and compliance along your food supply chain. You need to connect everyone along the chain as inventory comes in and goes out. Without systems like this, tracking manually is a huge endeavor.”

Track Records

Somewhere, hidden in that stack of clipboard notes harboring the status of a manually managed yard, is all the information a yard manager needs to know in real-time so he can operate his yard as efficiently as his counterpart warehouse manager efficiently operates his side of the fifth wall.

It’s easy to see how something like a hot load can be overlooked in all that confusion, usually with dramatic financial consequences. Clearly, yard visibility is the top priority in establishing order.

YMS programs offer food warehouse and DC managers a wealth of critical information, including temperature and fuel monitoring, out-of-stock monitoring, security and seal monitoring, detention and demurrage alerts, yard personnel metrics, yard checks, trailer tracking and yard accident histories.

Warehouse management of the yard: Gone is the idea of viewing yard operations separate from those in the warehouse. Yard management systems are really like WMS of the yard, because of the orderly sequencing of yard

events, notes Nix at Manhattan Associates. YMS has similar capabilities to WMS, doing cycle counting, yard audits, priority management and event management for critical changes.

“The truck arrives; the guard checks it in and out, checking driver information and seals, assuring security,” explains Nix. “Then YMS checks the dock schedule and this is where it touches the warehouse. The WMS dock schedule determines the optimal put-away distances. YMS locates a zone so it can assign the trailer or container to the right spot until it needs to be moved to the dock.”

Yard optimization is like slotting optimization in the yard, Nix explains. “As a truck arrives at the guard shack, the system knows what’s on the truck and which dock door the truck needs to go to. The system directs the trailer to the proper parking zone and spot so the trailer doesn’t have to travel far to the dock.”

Managing reefers—product holds: One of the major considerations for the food and grocery industry is managing refrigerated trailers so there is no spoilage, says Kozenski at Red Prairie. “Another thing we do is track inventory expiration dates in trailers. We bring in trailers when inventory rotation rules require it’s time and we use that inventory so it doesn’t expire.”

Product holds are another critical consideration, continues Kozenski. “If corporate gets a call from a supplier warning of a problem with a meat delivery, we can put that inventory on hold if it’s in the warehouse or in a trailer.” He adds one recall could mean \$5 million of brand value to a company.

Although other products on the market address temperature sensors and fuel monitors, Gollu notes PINC’s Reefer Monitor offers that same information less expensively by communicating via the main servers. “Our refrigerated trailer temperature monitoring product is a tag you plug into a Thermo King or Carrier unit.”

In the zone: Yard optimization is critical, says Oglesby at Kraft Foods. “Everything in our yard is organized by zones, so it cuts down travel time by a good 30 percent.” Zones include dry empty trailers, dry protected, reefer unloaded and reefer loaded.

Gollu notes PINC helps companies design well-planned yards and zones by rendering the trajectory a yard truck drives at any given period. “Yard managers have a visual representation of where most of the driving occurs.”

Expedited, critical, perishable loads: These loads are assigned immediately to the dock for quick turnarounds to reduce spoilage

Kraft Foods Finds Trailers In A Flash

Before the Kraft Foods distribution center in Norcross, GA, installed a yard management system (YMS), the manually managed yard used a two-way radio system and paper to record activities. With several hundred trailers in the yard at any given time, manual yard management could be a Herculean task.

"Truck coordinators and trailer spotters would have to communicate by radio, write down the task assignments, locate and spot the trailers, then radio back again to confirm all the necessary information," states Tim Oglesby, operations and customer service manager.

Using YMS now, trailers are parked in particular zones according to temperature class. Working in real time, the YMS reduces the time it takes waiting to spot trailers to a door. "It used to take up to 20 minutes to find a trailer if we didn't know where it was," says Oglesby.

"Now we get a 'systematic' history of equipment movement as well as how long a trailer has been on the yard, whether it's been empty or loaded and to which shipment number and customer name it's assigned. It also benefits our carriers by optimizing their trailer pools and lets them know when they have too many or too few trailers."

The YMS program uses a drop-and-drag system allowing the truck coordinator to assign trailers to specific doors. "They just have to hit that trailer on the screen and drag it to the door and that action automatically makes an assignment for one of the yard spotters so he knows there is a move request waiting," explains Oglesby. "He goes to that space, gets the trailer and brings it to the door. Once that's done, he hits 'OK' and the system drops that task off the screen. Once the trailer load/unload is complete, the truck coordinators drop-and-drag again, noting the trailer number on the door and the trailer disposition. Then they move it to an assigned space in the yard."

Kraft was able to eliminate all but one manual yard check, which used to take several hours a day. "Our YMS has sensible solutions for a small cost," notes Oglesby. The system keeps online fuel and temperature logs of all trailers. It also tracks dwell time, helping customers reduce detention costs.

Oglesby says YMS brings order to the yard, extending the efficiencies within the warehouse to those in the yard. He adds the company's YMS paid for itself within 18 months. —A.T.



SAVING TIME: Using a YMS, Kraft has been able to eliminate all but one manual yard check.

and out-of-stocks. "A YMS program sends a signal to the guard, the yard jockey, or directly to the driver to take the load immediately to a specific dock door," Nix says. The system triggers an alert so products are not ruined due to fuel and refrigeration system outages, should a trailer with perishable items go unnoticed.

Trailer location: "We give a visual overview of where trailers are so managers know about every trailer movement and every arrival and departure," says Gollu. They also know where their yard trucks are, how fast they are driving and how many moves they make in a given day.

"We also track idle time to see if it's compact or spread throughout the day and whether they are idling too much of the time," notes Gollu.

Detention, demurrage charges: YMS can

also help companies can avoid costly demurrage charges. "The system monitors how long a trailer's been in the yard and alerts the carrier or the warehouse manager when a trailer on the yard needs to leave," Kozenki says. "For CPG food and beverage manufacturers with 20 or 30 sites across the globe, this could mean millions of dollars."

Other benefits include electronic documentation of all arrivals, departures, moves, and alerts. "Third-party carriers deliver and pick up trailers by appointment," notes Gollu. "If they are unable to pick up their trailer by the appointed time, they charge the DC demurrage and detention charges that can add up to tens of thousands of dollars a year."

On the other hand, a warehouse can defend

itself against faultless detention and demurrage charges. "This is why documented history is such an important issue," says Harris at Cypress.

Security maintenance: YMS tracks and verifies incoming and outgoing trailers and checks seal integrity. It also tracks driver and yard jockey information for security and theft purposes.

Yard checks: Order in the yard can disintegrate just by one truck parking incorrectly, which then starts a snowball effect, explains Gollu. Yards doing manual yard checks have to do checks multiple times a day.

Harris adds it used to take one of his clients up to three hours to complete a yard check, prior to implementing YardView. "The yard check was obsolete before it was even completed."

Synchronization: Having YMS integrated with WMS and TMS provides synchronization, notes Kozenki at Red Prairie. "They are all part of the same data model because when a receiver in the warehouse finishes his work and the trailer is empty, he can immediately instruct the yard jockey to move the truck. That is the handshake I like to call synchronization between the systems allow them to know what's going on on both sides of the warehouse walls."

Staff monitoring: Gollu notes YMS helps companies manage staff more effectively. "You can identify employees who are not performing well so you can remedy that through additional training. By monitoring the speed of yard trucks, companies can prevent accidents. When one does occur, you know who was at fault."

How It Works

PINC's YMS programs use passive RFID and MEMS-based sensors to determine the position of items, eliminating the needs for heavy, up-front infrastructure, notes Gollu. PINC tracking units are installed in yard trucks. These units have an RFID reader with 802.11 capabilities, as well as GPS and motion sensors. The gate system consists of a laptop; Internet connection enables communication and PINC hosts the system.

When a trailer arrives at the gate, PINC's Yard Hound YMS program reads the RFID tag and directs the trailer to a particular parking spot. "As yard trucks do their work around the yard, they are gathering all information about which trailers are in the yard and where they are, so they are essentially the eyes and ears of the yard," explains Gollu.

The solution can integrate into a company's WMS or TMS programs, releasing richer information about a trailer's activities on the yard and when it's ready to leave.

YMS: Is It Right For Your Operations?

Choosing a standalone or integrated (with WMS or TMS) solution depends on a variety of considerations.

"I think rather than trying to solve all the problems at once, it makes sense to first understand what's happening in your yard," says Aleks Gollu, CEO of PINC Solutions in Berkeley, CA. "A standalone solution like ours gives you the visibility you need to accomplish that. Once you improve what's going on in the yard, you can integrate with WMS and TMS in a phased approach."

Gollu adds benefits are immediate and implementation is quick with a standalone system.



FASTER ROI: Experts say benefits are immediate and implementation is quick with a standalone solution.

major benefits of YMS, in addition to soft savings and improvements like better customer service. "Because the effects and cost of poor yard management is spread over many departments and is not tracked well, it's difficult to articulate why a company should consider implementing YMS programs. Until we can do that as an industry, companies will be slow to adopt solutions." —A.T.

"When you do an incremental amount of integration, your information is coordinated across the system, so your yard is operating better, which translates into better warehouse operations."

Although the size of your yard matters to a certain extent, deciding if you need YMS relates primarily to the number of trailers in your yard, says Tom Kozenski, vice president of product marketing for Red Prairie in Waukesha, WI.

"If you routinely have 30 to 40 trailers and the turnover rate for those trailers is about 25 percent to 50 percent a day, you have enough ROI for a system."

Jim Harris, president of Houston-based Cypress Inland Corp., reports customers rate visibility and reduced chaos as the

PINC's partnership with C3 delivers a complete solution. "Our strength is visibility and theirs is scheduling and optimization," says Gollu.

Harris at Cypress Inland says when he designed YardView, he wanted to create a system that's easy to use and configure. "We started with a proven paper-based process and revamped it to take advantage of technology. Then we integrated a lot of could-we-do-this ideas from our customers to create an easy-to-use Web-based program running on the customer's Intranet or over the Internet to do things like in-cab (or in-truck) real-time trailer updating and WMS and TMS integration." Aberdeen Group named YardView a Best-of-Breed solution.

"The minimum we need is a carrier name, trailer number and a parking spot to track a yard effectively," continues Harris. "Companies generally track up to 12 additional pieces of data like the products onboard, loaded status and seal number. All a guard at the gate has to do is find the trailer on an online report and click a link and the trailer gets inbound without

having to key in much information."

YardView sends out automatic e-mails alerting carriers when trailers are loaded and ready for pickup.

"Everyone is on the same page and you don't have to wait for the guy who updates the Excel spreadsheet to return from lunch," continues Harris. "We don't have to send yard jockeys out looking for trailers during the day. If one of your departments wants to know what equipment is out there, they just click an icon on our drag-and-drop page and they get a report showing them all the information they need in real time."

Manhattan Associates offers Load Management Solution, which contains a yard management program and an online self-serve, appointment-scheduling program.

"Your vendors or carriers can go online and schedule their appointments into your DC and the yard management program takes the appointments and optimizes where the trailers will go when they arrive, based on the dock

door schedule," explains Nix.

Event management alerts give companies a heads-up into situations that could turn critical. "If you have trailer shortages or detention charges because your carriers can't get their trucks unloaded, the system will help reduce these problems," Nix says. "It can also increase your customer service and store service by lowering out-of-stocks and spoilages because you know exactly where that inventory is when you are about to have a problem."

Manhattan Associates uses RF technology along with temporary or permanent RF tags.

Red Prairie's Yard Management solution also uses RF technology that checks trailers in and out at the guard shack.

"A load could be a priority shipment in that it needs a quick turnaround because it's either late or has out-of-stock inventory on it," explains Kozenski.

"Or it could be a live load, in which case the driver will stay with it until it's unloaded and ready to leave. When a trailer is ready to leave the yard, we check it out of the yard through security, capturing the driver's name, the license number, the number of the tractor, the seal number and whatever other security information the company needs to collect," he says.

Kozenski notes RFID is still an emerging market and companies commonly use RF and scanning for data entry. Red Prairie's Yard Management product uses RF technology and the company will soon launch its RFID version.

"Internal fleets could have permanent RFID tags on their equipment and, if not, we have temporary tags we put on and take off as trailers enter and leave the yard."*



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