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PALLET ENTERPRISE

PalletOne Embraces Lean Manufacturing, Certification to Improve Its Butner, N.C. Facility

By Chaille Brindley

Think Lean: *Managers at the Butner facility started with lean improvements by cleaning up around the Viking nailing lines. Early wins here helped develop buzz throughout the plant on the value of the lean program.*

Besides being one of the work horse facilities for PalletOne Inc., the nation's largest pallet manufacturer, the Butner, N.C. plant is also a showcase for the company's lean manufacturing initiative and the coordinator of its colored mulch certification program. Although the plant doesn't have a lot of new shiny equipment, its managers have found ways to boost production, reduce problem orders, improve safety and better promote its products.

Quite simply lean manufacturing is a process improvement strategy that leads companies to reduce the amount of time it takes to complete a particular task, limit unnecessary waste of materials and human movement, and minimize downtime. Companywide PalletOne has been utilizing a lean manufacturing strategy for the last three years.

Howe Wallace, the president and chief executive officer of PalletOne, said, "The whole world is under a margin squeeze; by identifying lean savings, you can improve your margins without increasing prices." He added, "The Butner plant is the star of the show as far as adopting lean manufacturing principles."

Getting Started with Lean Manufacturing

It all began with a customer that introduced PalletOne to lean principles. Senior management met with lean consultants that started the process of educating the company about lean business principles. Wallace appointed a senior manager to lead the effort at the company and required all plant managers and supervisors to go through lean training. Each plant was directed to come up with its own plan to target one area and work to improve it.

PalletOne has followed the 5S lean manufacturing strategy, which focuses on how best to organize a workspace for efficiency and effectiveness. The 5S phases: sorting, set in order, systematic cleaning, standardizing and sustaining. PalletOne added a 6th S in safety to its focus.

Armed with a 6S approach, the managers at Butner tackled its Viking production lines as its initial effort. The Butner plant has two Viking 504s and one Viking 505 located at the center of the plant. The idea was to impact an area in the center of the plant and move outward so that everyone realized this was more than just management's latest little idea.

Eddie Stokes, the sawing supervisor, has worked at the plant for 18 years, and he said, "It's a culture thing putting lean manufacturing to work at PalletOne. Lean is not just a process, it is a culture change."

Wallace said that before the 6S approach was deployed on Butner's Viking lines there were bad hydraulic fluid leaks on the floor and everything was cluttered around the nailing machines. He explained that now you could eat off the floor around the machines. He added, "Thanks to the lean process changes we are making a pallet a nickel cheaper than we were a year ago at the Butner facility."

The nailing line supervisor, "Big" Mike Miller, joined the company around the time that the lean initiative started and was an early believer and evangelist for the program. Miller said, "The quality of work has improved for everyone in the building – it's just a better work environment."

Lean Starts at the Top: *Butner Plant manager, Danny Brooks, (right) and mid-Atlantic regional manager, Matt Sheffield, (left) led the lean process improvements by looking for ways to reduce downtime, remove clutter, improve maintenance practices and build a new culture at the plant.*

Supervisors took pictures of the work area before the project began so that they could demonstrate to others and remind themselves of the conditions before and after the process. These pictures are posted on a board near the work area with information about production runs and key metrics. They had to realize that they had accepted conditions as normal that would no longer be acceptable. Instead of puddles of leaking hydraulic fluid, the floor was to be kept clean and clutter free. There were leaks everywhere, and the maintenance team fixed them.

The entire line was analyzed to optimize the location of every item from boxes of nails to fans to board bins and so on. Instead of a big pallet load of nails stored near the nailing line, the supervisors make sure that only what is needed for the day's work is placed near the machines while the remainder is kept in storage. This has helped reduce clutter around the machine and provided a visual reminder to help operators analyze how many nails are being used on each run.

Concerned with safety hazards, the Butner managers looked to clean up anything that could be a safety concern or cause unnecessary strain on workers. They put nail gun stands near the workers and placed hoses on reels for easy feeding and storage. Fans were moved from on the floor in the way to overhead and out of the way.

Each machine received its own color-coded set of tools and a board to store them on so that it was easy to tell if something was missing by a quick glance. This cost money initially because PalletOne has to buy new tools. But it saved money in the long run by ensuring that tools were at the location when they were needed, and it also reduced the amount of lost or stolen tools because there was visual accountability and tracking. If a tool was missing, it was your job to find it, and if a blue tool was near a green machine, it was easy to know where the tool belongs. Tools with cords were replaced with cordless tools to reduce trip hazards and improve mobility.

PalletOne placed lift tables near the pallet lines so that employees had to bend over less in their daily work. Miller said, "Lift tables have made a big impact

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6S: *Mike Miller, the nailing line supervisor, became an early evangelist for the lean initiative. PalletOne followed the 5S lean manufacturing strategy, which addresses the following: sorting, set in order, systematic cleaning, standardizing and sustaining. PalletOne added a 6th S in safety to its focus.*

on productivity because people aren't as tired and fatigued at the end of the day."

The placement of everything was questioned to optimize it. Managers would ask, "Why is this here?" or "What is in the way?"

Managers also began asking questions of the operators to find out what they thought would make their job and work space better. One simple thing they added was a cup holder on each side of the line for the Viking operators. Miller laughed and said that you would be surprised how much a little thing like a cup holder can improve the life of an employee. Also, the company added ladders on both sides of the Viking to make it easier for employees to access the top of the machine from either side.

The lean process also analyzed problems with orders or product consistency. For example, PalletOne produced a pallet that led to a $900 drum puncture problem due to an exposed nail. PalletOne made the problem right with the customer and then sought to improve its process to reduce the likelihood that exposed nails would go unnoticed in the assembly process. It added a metal pipe over the conveyor at the end of the nailing area before the stacker. Thus, any pallet with a significantly raised nail would get caught and not go into the stacker. The worker would then hammer

Mulch Certification: *PalletOne has obtained certfiication through the International Playground Equipment Manufacturers Association (IPEMA) for five of its plants. This gives customers ease of mind that they are buying consistent quality and mulch that is safe for children and playgrounds. The Butner plant coordinates the IPEMA program for PalletOne. It develops top quality mulch thanks to its West Salem grinder, BM&M screens and Colorbiotics colorants.*

Automation in the Right Places: *When the Butner plant wanted to improve the efficiency of its sortating area, the company repurposed a Smetco line from its Bartow, Fla. location. SMETCO's sortation line has improved efficiency and reduced the strain on workers. Notice the sign on the line indicating who maintains and operates the Smetco line. These signs throughout the plant help create a sense of ownership for each machinery station.*

in the nail to fix the problem. This simple fix identifies any problems before a customer encounters it without requiring a visual inspection of each pallet by an employee. The Butner staff also added a bump stop to the end of its nailing line to prevent stacker and conveyor separation when the forklift encounters full stacks of pallets. Finding these simple fixes goes a long way to reduce costs and improve customer loyalty.

The $900 Pallet: *After an exposed nail punctured a drum causing $900 in damage for a customer, PalletOne developed this metal stop to hold up the line if any similar situation arises in the future.*

Measuring progress is a key part of any effective lean strategy. Production meters are visible on the plant floor and adjusted every two hours so that line workers and managers can track progress. During the tour, Stokes pointed to pictures near each machine station. The pictures serve as a daily reminder of what things used to look like before the lean initiative. Stokes said, "We don't want to forget where we came from so we don't go back."

The lean process moved from the Viking machines to other machinery areas. Stokes, who oversees the sawing operation, mentioned how they improved the lighting throughout the plant and added dust collection and piping systems to reduce the amount of sawdust gathering near machines. They also mounted a tape measure below the cutup operation to facilitate measurements required to adjust for various cut lengths. Previously, they had to work to hold the tape measure in place while making adjustments. These little changes may not seem like a lot, but they can make a big difference when you have to changeover a line from one size to another. Stokes explained that they have made improvements to the sawing operation that has reduced changeover time from 45 minutes to 15 minutes all without sacrificing any safety consideration.

Butner Equipment List

Here's some of the key equipment at the Butner location: Two Cornell CLB's, three Cornell stackers, three WoodKraft gang saws, Pendu inline notcher, WoodKraft block saws, several Whirlwind pop up saws, West Salem grinder, BM&M screens, three Morgan bandsaws, LM Package Saw, two 504 Turbo Vikings, one 505 Viking, two Morgan edgers, G-Tek trim saw, Cornell trim saw, West Plains double head notcher, two Morgan edgers, Cornell trim saw, several Smart dismantlers, several Industrial Resources dismantlers, two Kiln Direct heat treatment chambers, Eagle dip tank, Smetco pallet sortation system and several Big Ass fans.

Moldy Pallets: *The Butner facility uses two Kiln-Direct heat treatment chambers to produce ISPM-15 compliant pallets. It also deploys fans to ventilate finished pallets as well as dipping some pallets in PQ80 from ISK Biocides to mitigate mold problems.*

A Lean Revolution Takes Commitment

Leading the lean initiative has taken a strong commitment from each of the plant managers at PalletOne. Maybe nobody in the company has made it a reality to the same degree that Danny Brooks, the plant manager of the Butner plant, has achieved.

Wallace confirmed that the Butner facility has become the location that has done more with implementing lean practices than any other plant. He added, "I am happy with the progress at other facilities too. All of our facilities have done a good job of embracing lean principles as a way of life not just a momentary change."

One of the challenges is that it is easy to slip back into old habits after a while. Wallace said, "The lean process cost us money before it saved us money and some of the initial benefits were mostly intangible." But once the company made it past the initial investment of staff time, higher maintenance costs and additional tools, the changes demonstrated real time, efficiency and cost savings.

Matt Sheffield, the mid Atlantic regional manager for PalletOne, said, "It starts with measuring everything. From the saw line to finished pallets and containers, nothing is off limits. If you measure something, you can get better at it… Once you change culture, it starts snow balling."

Wallace said, "It's nothing new under the sun. Some of the lean principles are things we have been doing in the past. It's just that we are trying hard to instill discipline so that lean becomes a way of life not just a temporary project."

The company began sharing success stories across its corporate computer network. This allowed the company to recognize achievements, share ideas and create buzz around the lean manufacturing concept. Wallace writes a daily letter to his employees to communicate vision, new initiatives, success stories, etc. These messages are emailed to managers and supervisors and get shared throughout the organization. Many of these letters find their way to a blog that Wallace posts on the Web. You can view it at http://blog.palletone.com/

Overall, lean has cut labor costs for PalletOne by 15%. Wallace added, "The equalizer may be the machines, but the difference maker is the people. If you lose good people, you discover real quickly that good people make all the difference in the world."

Lean Thinking Only Goes as Far as Your Maintenance Program Will Carry It

A major driver of the success of any lean initiative is a company's maintenance staff. Wallace admitted, "We have invested more in maintenance personnel than we did in the past. If you don't have the right maintenance people a lean program is not going to work."

Maintenance became a bigger focus especially when it comes to organizing parts and developing better preventative maintenance routines. James Sanders, the maintenance manager at the Butner plant, said, "If you do lean properly, it will decrease downtime on machines."

Sanders embarked on a program to improve the cleanliness of machines and organization of the parts department. Sanders even leaned down the tool bag that maintenance staff uses so that it is all organized and optimized to reduce the amount of running back and forth to get tools. Sanders said, "We can fix 90% of our problems with all the tools in this one bag."

The Butner staff also cleaned up the parts room to get rid of things they will never use and add inventory of frequently needed parts. They also started using carts and bins to make it easier to transport blades to the sharpening room.

Mulch Certification Gives Customers Ease of Mind

Another major initiative that goes right along with the lean program is the mulch certification program that has been led by managers at the Butner facility. One of the few locations with a large pallet recycling operation, the Butner plant has an extensive grinding operation.

Danny Brooks oversees PalletOne's certification program with the International Playground Equipment Manufacturers Association (IPEMA). Four other PalletOne locations are also IPEMA certified, which ensures that size, consistency and quality control is followed. Brooks said, "The IPEMA certification tells customers that what we are putting on the ground is safe for kids to play on with no contaminants. It means our

product is put through testing, annual audits and a rigorous paper trail system."

IPEMA certified facilities include: Butner, Chase City, Mocksville, Siler City and Shipshewana, Ind. PalletOne has been IEPMA certified since 2009.

Brooks explained, "We go through a very strict process of maintaining consistency in our mulch product for size and content to meet certain specifications that are mandated by the IPEMA regulations."

Sheffield added, "It's an easy sales tool for our sales staff. Our customers like to know that they are buying certified products."

For more information on the IPEMA certification process visit www.ipema.org.

The Butner facility uses a West Salem grinder to grind material for its mulch. BM&M screens help ensure the proper sized material is colored and sold as mulch. Larger material may be sent back for another pass through the grinder. Colorbiotics colorants treat the material to provide a number of popular colors.

Strong Suppliers Make a Difference

Formerly Southern Pallet, the location has been under PalletOne ownership for years. This plant focuses on new and used pallets as well as colored mulch and playground mulch. Although most of the equipment has been in service for years, the durability of the equipment points to the value of PalletOne's machinery suppliers.

Little Changes Make a Big Difference: *Eddie Stokes, the sawing area supervisor, demonstrates how mounting a tape measure on a saw line has made changes easier for one person to accomplish. Also notice the color-coded wrench situated exactly where it is needed to make adjustments. Little improvements like this have dramatically reduced changeover times.*

When the company decided to improve automation of its Butner repair facility, it brought a Smetco sortation line and two stackers from PalletOne's Bartow, Fla. plant. Gerald Oakley, the Butner recycling plant manager, said, "These guys have energy at the end of the day thanks to the sortation line." It removes a lot of the physical pallet movement that can wear out workers. Also, they are able to process more pallets per shift with fewer people.

Brooks pointed to what PalletOne has done to counter the mold issue with customers. The Butner facility runs two Kiln-Direct chambers for heat treating pallets. Brooks said, "Our Kiln-Direct heat treating units do a great job and are easy to maintain."

Many customers were originally confused that heat treated meant mold free as well. But heat treating can actually make surface mold worse by bringing moisture to the surface of the pallet. All PalletOne plants in the mid-Atlantic region use chemicals (PQ80 ISK Biocides) to prevent mold growth as requested by the customer. Also, the Butner facility uses fans to keep air moving in its pallet storage and manufacturing areas. PalletOne has also educated customers on ways to minimize mold by offering seminars led by Dr. Mark White of Virginia Tech.

Changing Customer Dynamics for Butner Plant

The Butner plant has evolved through the years as the market has changed. Today, the Butner facility processes a variety of hardwoods (oak, gum, maple, sycamore, ash and poplar), green pine, and kiln dried pine, etc. It has a growing recycle business and is now 60% new pallets and 40% recycled pallets. The overall GMA pallet size (48x40) used to be 60% of the business at the facility. It is now 20-25% or less according to Sheffield. Overall for the Mid-Atlantic region, 48x40 production is currently 29% compared to 45% 15 years ago.

Brooks said, "Change is hard, and we have had to deal with a lot of change when it came to lean manufacturing." He added that the change has been great from a customer, bottom line and workplace environment perspective even though some employees were skeptical at first.