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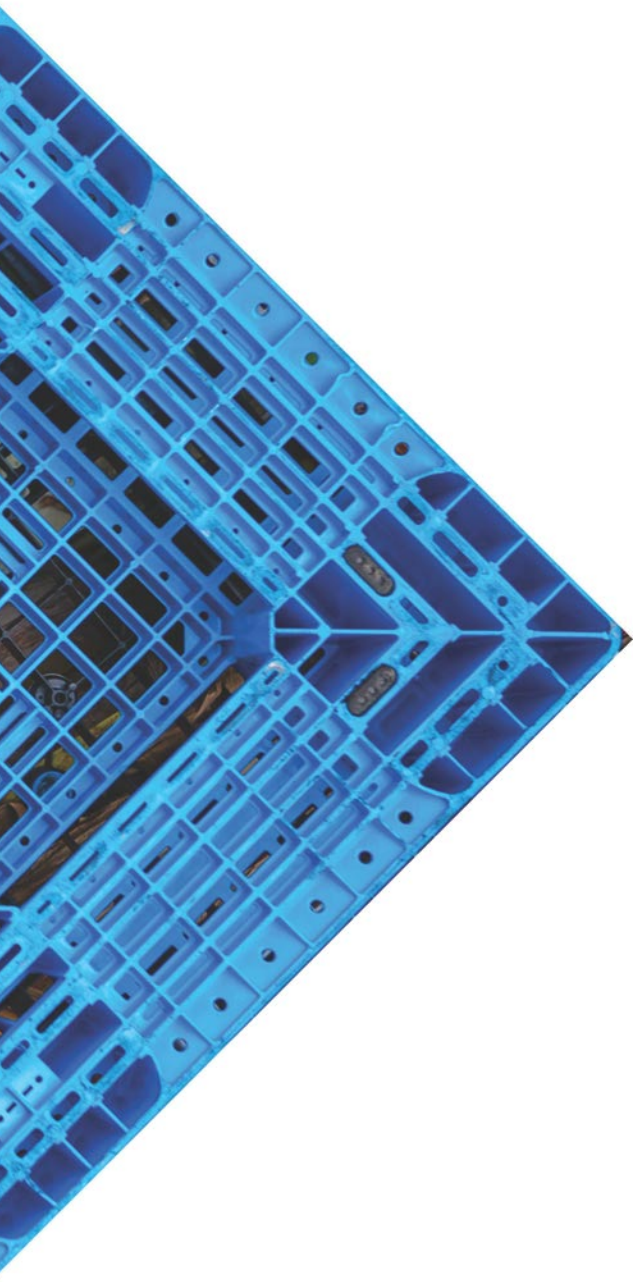
# PALLETS SUPPORT SUPPLY CHAIN STRATEGIES

# NO MERE BEASTS OF BURDEN, PALLETS ARE A VITAL LOGISTICS LINK. OPTIMIZE YOUR SUPPLY CHAIN BY CHOOSING THE BEST PALLET FOR THE JOB.



Wood pallets in all their forms have been the backbone of logistics operations for decades. But plastic pallets and other upstarts have gained ground to meet shipper demands for different applications.

Ultimately, there's a place in the logistics ecosystem for all types of pallets. Regardless of pallet type, however, shippers seek essential characteristics to move their goods safely and efficiently.

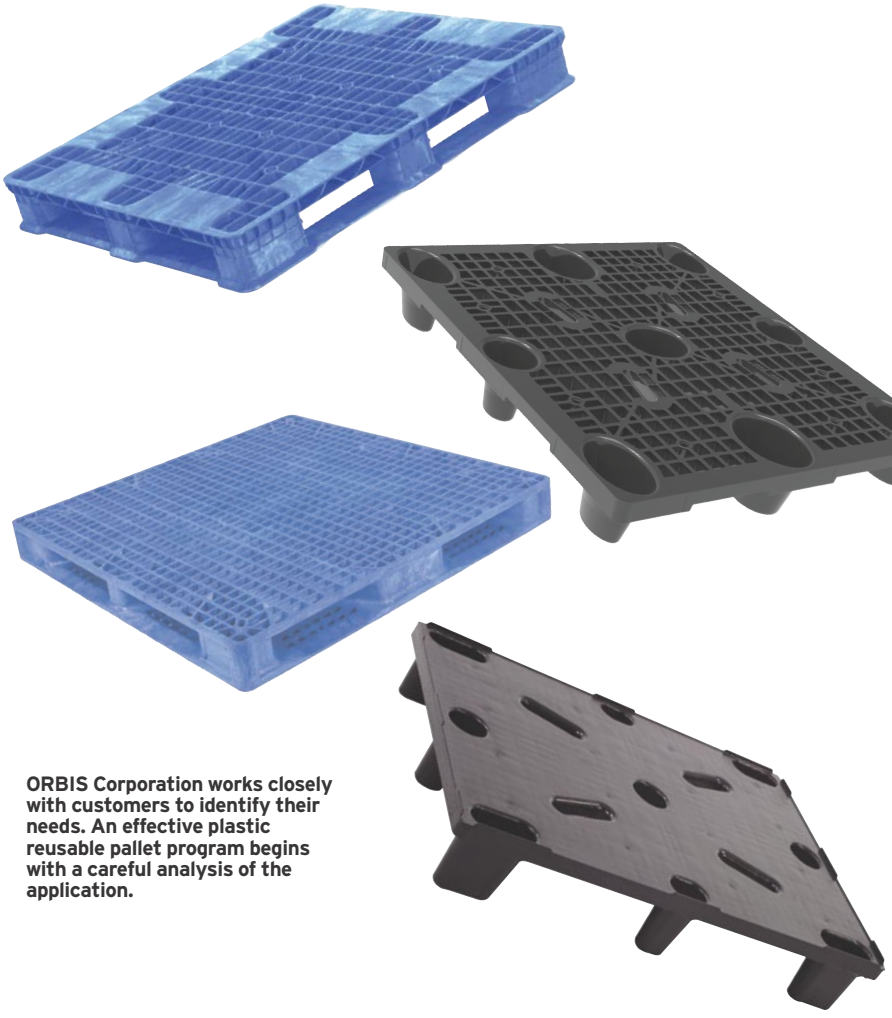
Durability tops the list. Pallets suffer a range of indignities, from being speared by forklifts to getting exposed to inclement weather. Yet shippers expect pallets to be ready to use at any time.

Strength is critical as well. The pallet must support the weight of the products that will be placed on it in stressful situations: on racks and lift truck forks.

Stiffness is a component of strength. The pallet must be suited to how it will be used. If you're storing heavy product on racks, the pallet can't sag under the weight. Otherwise, you could use a pallet with less stiffness that might also be less expensive.

The wood pallet is ubiquitous, with more than 2 billion in circulation carrying more than $400 billion worth of American exports. Solid wood pallets are used by 93% of the 274 respondents to a recent industry study.

Wood pallets are seen as a sustainable and reusable



**ORBIS Corporation works closely with customers to identify their needs. An effective plastic reusable pallet program begins with a careful analysis of the application.**

component of logistics operations because they're repairable and recyclable. The U.S. Department of Agriculture views wood pallets as a core part of the bio-based economy. Research from Virginia Tech reports that 95% of wood pallets are recycled rather than dumped in a landfill.

Wood pallets are inexpensive, easy to manufacture, recyclable, and compatible with most existing materials handling equipment.

#### WOOD ALTERNATIVES EXPAND

While wood pallets will continue to dominate, expect to see other materials gain wider adoption due to changing market and regulatory conditions, according to the *Global Market Study on Pallets* from Persistence Market Research.

As the requirements for food safety compliance and reusability grow, plastic and other types of engineered pallets will meet the demand for sustainable materials handling options. Non-wood pallets are expected to make further incursions into industries such as food and beverage, pharmaceuticals, groceries, and automotive.

About 45% of respondents to the Persistence Market Research survey also use plastic pallets, which are durable, resistant to insect infestation and weather conditions, and free of fasteners. However, they tend to be more expensive than wood pallets and aren't repairable at the same level. They can be custom designed for specific products or transportation requirements, as well as molded in custom colors. Shippers commonly use plastic pallets in pools or closed-loop operations to maintain control of the valuable asset.

Composite pallets are gaining ground, used by 18% of survey respondents. Designed to compete with the cost of a wood pallet and the cleanliness and reusability of a plastic pallet, the composite pallet can handle loads similar to a wood pallet as well.

The last of the top four segments, metal pallets, are used by 10% of survey respondents. Due to their higher cost, metal pallets are most commonly used in closed-loop supply chains to move heavy products. They are durable and generally will not lose their shape under heavy loads or in extreme weather conditions. However, they are susceptible to corrosion if exposed to the elements.

#### BEST SUITED

In addition to cost, suitability for the application is a key element in choosing a pallet. With the growing adoption of warehouse automation, consistent pallet dimensions and shapes are critical. A wood pallet that's missing a stringer or had a corner knocked loose from the last forklift movement could cause a jam in an automated system. That's when plastic and composite pallets come into play with greater dimensional stability and resistance to damage.

Pallets are transforming into more than beasts of burden, becoming nodes on the Internet of Things. Connected pallets can help capture data, turning a pallet into a mini-warehouse providing information on location, temperature, rough handling, and other real-time updates.

Shippers will be able to see how long their loads are idle, when they may get misdirected, and whether there are any external conditions that could be harming products.

Reducing the time a pallet sits idle can speed delivery times and optimize the supply chain. Companies can monitor humidity and temperature from the other side of the world, maintaining the cold chain for pharmaceutical and food products.

#### PALLETS GET SMARTER

iGPS Logistics, an Orlando, Florida-based leader in innovative, world-class supply chain solutions that leverage sustainable and intelligent shipping platforms, offers plastic pallets that


Meet a plastic pallet more durable than wood that handles repeated use under even the harshest conditions. In fact, ORBIS® reusable pallets can complete up to 200 cycles without failure, compared with an average of just 11 for wood pallets.* Make the choice today to refine your pallet with ORBIS.

## LEARN MORE

**www.orbisrefineyourpallet.com**

ORBIS®

Powered by Menasha Corporation

*In FasTrack testing completed at Virginia Tech, using the 40 x 48 RackoCell® pallet.



**The consistent size, shape, and weight of iGPS pallets are ideal for companies that have invested in industrial automation. Consistency leads to fewer obstructions and less downtime caused by equipment jams.**

provide multiple advantages over traditional wood pallets. iGPS takes a "comprehensive view of supply chain products and services to help our customers get their lowest total cost of business," says Jeffrey Liebesman, chief executive officer.

Because they're about 30% lighter than wood, iGPS pallets require less fuel for transport, leading to less pollution and fewer greenhouse gas emissions. To further reduce the environmental impact, iGPS molds any pallet that breaks into a new one.

Lighter pallets also reduce the risk of workplace injuries, even as they meet Grocery Manufacturers' Association (GMA) and National Institute for Occupational Safety and Health (NIOSH) standards. Plastic pallets lack protruding nails or splinters that can injure workers or damage shipments. iGPS pallets don't absorb liquids that can lead to contamination, are impervious to insects, and don't require toxic fumigation or similar treatments.

The RFID tags embedded within iGPS pallets provide track-and-trace capabilities, so shippers and 3PLs can monitor shipment movement and gain real-time information on environmental changes, as well as notice of suspicious activity. By using information from the RFID tags and other data, iGPS can help customers identify areas of potential savings or efficiency improvements. iGPS also manages pallet delivery and upkeep, including recycling, disposal, and regulatory compliance.

iGPS customers come from a range of industries. Those with products that are perishable or easily damaged typically benefit greatly from the company's pallets and services. This includes food and beverage and pharmaceutical products.

In addition, companies that are investing in robotics or industrial automation will find the consistent size, shape, and weight of iGPS pallets lead to fewer obstructions and less downtime from equipment jams. "The more consistency in a system, the better it can be automated," Liebesman says.

#### AUTOMATION IN THE EQUATION

When working with a customer that's introducing intelligent industrial automation, iGPS first studies the company's current processes and challenges, ideally through on-site visits and reviews of CAD drawings of the equipment on which the pallets will be used. A next step is developing the measures against which the pallets will be tested, and then testing them. iGPS also works with clients to quantify the forecasted benefits from the plastic pallets.

iGPS partnered with PURE Bioscience, Inc., a disinfectant manufacturer, to engineer an innovative pallet sanitization system. When a customer requests it, pallets are coated in an odorless, non-irritating, EPA-registered food contact surface sanitizer. This is done through a mist spray inside a trailer or container to quickly eliminate microorganisms.

The process reduces bacterial counts by more than 96%, exceeding industry standards and enabling customers to comply with the Food Safety Modernization Act requirement that transport equipment be sanitized to prevent food contamination.

"We are looking at every tool available to save on our customers' bottom line, whether it's the iGPS pallet itself or how it is utilized and transported," Liebesman says.

Choosing the best pallet for the job requires an end-to-end view of the pallet's journey. A shipment that moves from a manufacturer to a distribution center then to a retail location will often use the same pallet. But different steps in the supply chain could make use of different types of pallets that could ultimately improve efficiency.

The pallet loaded at the manufacturer's site would be one chosen for load capacity and racking strength, which

are important at the distribution center. Then the load from the distribution center to the retail store could be lighter and smaller. Should the same pallet make the entire journey?

### LOGISTICS STRATEGY DRIVES CHOICE

Perhaps the manufacturer must use wood pallets for loads going to the distribution center for weight and strength. But the loads to the retail center move on plastic pallets for lighter weight and smaller dimensions. Right now, the distribution center restacks the loads for the correct pallet. A thorough analysis could reveal that it's less expensive to convert the entire chain to plastic pallets, saving the labor costs of the restacking.

When selecting pallets, the key to success is picking the right tool for the job. Oconomowoc, Wisconsin-based ORBIS Corporation, which provides reusable plastic pallets, totes, dunnage, and bulk systems, undertakes a thorough evaluation of the environment and processes where its recyclable plastic pallets will be employed. Usually, ORBIS pallets are used in a closed or semi-closed loop application where the empty pallets are returned for reuse.

"We try to understand the application by conducting voice of the customer analysis, understanding what systems the pallet has to interface with and what the expected longevity of the assets will be," says Bob Klimko, director of business development for ORBIS. "We're in the reuse business, and so it only works if the pallets are reusable multiple times for multiple years."

Selecting the right pallet, or creating a custom version, is based on sanitation, equipment interface, weight load, and automation requirements within the supply chain. Reusable pallets in a loop arrangement must also use a reverse logistics supply chain to move the empties back to where they can be reloaded again.

"Everybody cares about what happens to their pallets when there's something on them," Klimko says. "But we have to care about empty assets and how they can be prepared for reuse each time. If they're not, then our business model doesn't work."

Demand for pallets is shifting in response to trends and safety regulations. Hygienic applications are growing, based on the product being moved but also the conditions inside the facility where the pallets are used. Retailers are looking for smaller pallets to move goods in small-footprint stores.

"We have to work with the equipment, such as a pallet jack or a fork truck that's moving the pallet the last 50 feet," Klimko says.

For automated warehouse systems, plastic pallets can be adapted to fit existing configurations. "We have to work with the automation because nobody throws out their systems," Klimko says. "There might be various steps that we have to take to make it work."

Not all supply chains are suitable for reusable packaging moving in a loop system. The supply chain must have adequate density and velocity to make it cost-effective to move the empty pallets for reloading.

It's vital to work with all the stakeholders in the supply chain, not just one group or element, to develop the best solutions. Pallets selected for retail merchandising may not fit with the distribution center's automated systems.

"If you're working with a product that's supposed to be optimized throughout the supply chain then stakeholder alignment is critical up front. You have to make sure that you're not trying to optimize one area of the supply chain and sub-optimize another."

The upfront analysis is worth the effort because once a pallet loop system is put in place, it can be challenging to change.

"It's better to go slow and methodically than to be hasty," Klimko says. "It's down and dirty work that we do to make sure our customers get the product protection and economic benefit they need." ■