

Grower 101:

Pallet Handling Equipment

Having the right equipment and docks can make your operation more efficient.

By John Bartok, Jr.

Most materials that growers receive are handled on pallets. Bags of growing mix, bundles of containers, fertilizer and construction materials require less handling labor when pallets are used. Fortunately, there are many pieces of equipment that have been developed to handle them.

The same equipment can also reduce handling associated with shipping. Boxed plants, nursery stock and plant carts are easier to load with a pallet truck or forklift. Selection of the equipment should be made based on the size of your operation, the frequency of deliveries, the type and distance materials that have to be moved. The following are the most common machinery available and some criteria for making your selection.

PALLET TRUCK

The pallet truck is the lowest-cost pallet mover. The truck is pushed under a pallet, and a hydraulic or mechanical mechanism raises the pallet a few inches off the ground. The large steer wheels allow a load as large as 6,000 lbs. to be moved with a force of only 75 lbs., but for this to happen, a paved surface is needed. A new hydraulic pallet truck can be purchased for \$250-500. Powered pallet trucks cost anywhere from \$2,500-4,000. Although, used trucks are available for less.

Pallet trucks are good for moving materials around the headhouse or unloading trucks if you have a dock that is at truck floor level. Choose one that has ball bearing wheels, rear rollers that will fit the common pallets delivered to you, and a capacity for the heaviest loads you need to move. Trucks are rated in the load they will carry and the length of the forks. As most materials are delivered on standard 40-inch by 48-foot pallets, a unit with 48-inch-long forks is desirable.

Battery-operated, motorized pallet trucks increase worker productivity by eliminating pulling and pushing. The 12- or 24-volt batteries that power the front wheels move loads at a speed of up to 3 mph. If you move a number of materials over longer distances up to 300 feet, a motorized truck is a better choice.

Some units are equipped with a platform or compartment so the operator can ride. This reduces fatigue and speeds handling materials on long distances. Travel speeds up

to 7 mph are possible. Spring-loaded casters and stabilizers are included for safety in cornering. The control handle is designed to provide steering, speed, lift, horn and brake



Top left: Wood, plastic and cardboard are used for pallets that hold the materials growers receive. **Top right:** This low-cost, hand-powered pallet truck rolls easily on a concrete floor. **Middle left:** A battery-powered pallet truck will move large loads over long distances. **Middle right:** Three-point hitch pallet forks will lift and carry heavy loads easily. **Bottom left:** An articulated fork lift makes loading carts easy in confined areas. **Bottom right:** Extension forks are needed to handle large trays. (Photos courtesy of John Bartok)

control. Most units have a built-in battery charger.

When unloading a truck or trailer with a pallet truck, you will need to have a dockboard to bridge the gap between the truck bed and the dock. These are available in steel or aluminum with aluminum weighing approximately half the weight of steel. Dockboards are rated by capacity, width and length. Capacity should include the weight of the pallet and the lift truck. Width should be at least 12 inches wider than the pallet. The length is determined by the difference in height between the truck and the dock. A 5-foot length will work for a difference of up to 6 inches and still allow clearance under the pallet.

LIFT TRUCKS

Lift trucks, also known as straddle trucks, will unload pallets or other heavy objects off a truck where a dock is not available. Foot-powered and battery-powered units are available with a capacity of 1 ton or more. With stacking heights of up to 5 feet, these units also work well in storage areas for bulbs, nursery stock or supplies. Look for units with adjustable fork spacing, large wheels (8-inch diameter or more) and a capacity for the heaviest pallet to be handled. Some units are available without the straddle legs by using counterweights. You can expect to pay \$1,500-4,000 for one of these.

FORKLIFT

A low-cost solution to getting a forklift is to add forks to an existing piece of power equipment such as a tractor or skid steer loader. Most growers already have a tractor for pulling trailers or plowing snow. For the generally light pallet loads found in the greenhouse business, a front-end loader attachment can work well. The load that can be carried will depend on the size and weight of the tractor and the strength and tire size of the front end. Prices start around \$700 for a set of 2,000-lb. forks.

A better choice might be to purchase a forklift that attaches to the three-point hitch of the trac-

tor, because with rear mounting a heavier load can be carried. Available units able to lift up to 2,500 lbs. to a height of 5 feet is enough to load and unload a truck. Using parallel linkages, the load remains level through the

lifting and lowering cycle. Attachment to the tractor takes only a few minutes. These devices also work well for moving materials around the greenhouse or nursery.

A conventional forklift is a bet-

ter choice for larger operations that handle materials on a daily basis and when materials have to be transported longer distances. Forklifts can be powered by gasoline, diesel, propane or electricity. For inside operation, electricity ▶

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equipment

or propane should be used. Select a forklift that will carry the largest expected load. Most materials, such as growing mix and containers, are relatively light. Even the largest cart loaded with flats or pots is less than 1 ton. For most applications, a capacity of 3,000-4,000 lbs. is adequate.

Service is a key factor in selecting pallet-handling equipment. Although most equipment requires minimum maintenance, the availability of repair parts should be considered.

DOCK DESIGN

A loading dock can service the greenhouse operation in both receiving material and shipping plants. It provides a platform that is level with the truck bed, making it accessible to forklifts, carts and pallet trucks. Location and construction are important. Primary concerns should be for a location with convenient access to the greenhouses and the highway, and adequate space for storage of materials and maneuvering equipment.

The style of dock will depend on the terrain around the greenhouse. On sloping ground, a retaining wall can be built into the bank, and the platform area can be paved for easy access. The truck area should be reasonably level so that the truck body is level. On flat land, two options exist: either a berm is built up to the truck body height or the soil is excavated to a depth equal to the height of the body.

If a berm is constructed, retaining walls should be used to hold the soil in place. These can be made of concrete or pressure-treated lumber. The area at the top of the berm should be large enough to maneuver the equipment, generally a minimum of 10 feet. The ramp should have a slope no greater than 10 percent.

If the platform is to be located at existing ground level, an excavation for the truck is needed. Retaining walls are constructed to keep the soil from caving in. Either natural drainage or a sump pump may be needed to keep the area dry for year-round access. The excavated area should be

long enough so that the truck platform is level.

It is best to allow 12 feet of width per truck position. If flat bed trucks are used, for example, with bedding plant containers, side-loading docks are desirable. A side dock area usually requires 12-15 feet for fork lift operation. It is best if the dock height is slightly lower than the truck bed for easier access to the containers or pallets.

Although most docks are constructed 48 inches high, many truck beds are higher or lower. If the truck traffic will be predominantly one type of truck, the dock should be designed to fit the height dimensions of this vehicle. Dock plates can be used where differences are small.

The amount of apron space required for maneuvering equipment into the dock depends on the length of the tractor-trailer or truck unit, its turning radius and the width of the stall. If the rig is to be backed into a stall within a shipping building, doors large enough for easy maneuvering are needed. For an open dock attached to a building, a door measuring 8-9x10 feet is needed. Weather seals around the door will minimize the heat loss from the building. For night operations, good lighting should be provided.

The time and labor that can be saved with pallet handling equipment is significant. Even the small grower can benefit from having this equipment available. **GPN**

John Bartok, Jr. is an agricultural engineer and extension professor emeritus in the Natural Resource Management and Engineering Department at the University of Connecticut, Storrs, Conn. He may be reached at jbartok@rcn.com.

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“When it comes to watering, it’s easy to get in over your head.”



One summer when I was a kid, I built an irrigation system for my little garden out back. Boy, did I get a kick out of saying I had the best “dammed” garden you ever saw. That is, until I left the water running all night and woke up to find the whole backyard flooded!

What a mess. For that, I got two weeks of yard restriction and a good talking-to from my father. You probably know him better as Jack McConkey, the guy who founded this company. “Son, when it comes to watering, it’s easy to get in over your head,” he said.

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