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1. Growers can apply Lean to shipping and handling. Rogish, A. Greenhouse Management and Production 28(3):31-35. 2008.

Shipping and handling presents opportunities for improvement that can be leveraged throughout your entire organization.

By Andy Rogish

Growers can apply Lean to shipping and handling

LEAN IS ABOUT LOOKING at your product and processes through your customers' eyes and asking if it's a value or waste to them. Value is anything that changes the form, fit or function of the product and is something customers want. Everything else is waste.

One of the most challenging and rewarding places to apply Lean is to shipping and handling. This is the most headache-prone process in most companies since it's the end of the pipeline where much of a company's inefficiencies can collect. Shipping and handling presents opportunities for improvement that can be leveraged throughout your organization.

Stabilize shipping and handling

Typically, a shipping and handling weekly plan looks good on paper

until the day shipping begins. Then the plan goes out the window, and everyone goes into fire-fighting mode. Employees begin individual heroic, but uncoordinated, efforts to resolve problems. This is typical of an unstable process. Some simple Lean tools can provide stability.

Implement 5S. 5S (Sort, Separate, Shine, Standardize and Sustain) is a team methodology for cleaning any work area that reduces waste by removing clutter. It makes real work more visible and provides the foundation for product flow.

Stabilize with kaizen. Kaizen, either as an improvement event or as an incremental improvement effort by workers, opens the door for many basic Lean tools. Here are a few you'll use in a kaizen.

- **Define value.** Get your team

Change may be possible

Your company's ability to apply Lean tools and concepts will depend on its organizational readiness, which consist of two elements.

The **first** is a culture that embraces change. People will not accept or own improvement if they don't believe there is a genuine need for change.

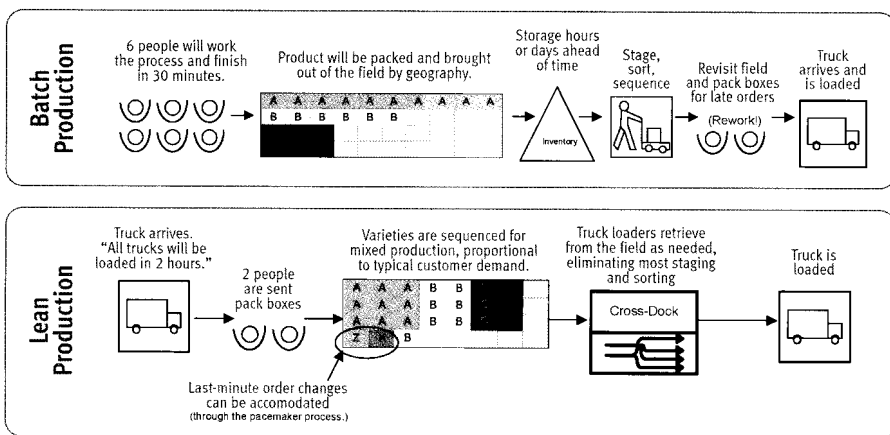
Secondly, employees must be exposed to Lean concepts and trained in Lean tools to develop their abilities. One person can implement Lean, but it can only be sustained by a team effort of those who actually do the work in the process.

together and ask them what customers value in the shipping and handling process. Everything not defined as value-added is a form of waste and is subject to improvement.

- **Create a Value Stream Map.**

As a team exercise, map out how the shipping and handling process actually unfolds. Value Stream Mapping causes the entire team to see the process the same way. It creates a team dynamic that will produce incredible results.

○ **Apply takt time.** Takt time is the rate at which the process should work based on the voice of the customer. For instance, if 2,000 boxes need to be shipped in one 8-hour day, the takt time is approximately 12 seconds. Every 12 seconds,



A Lean cross-docking process might look something like this.

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product should go to the next step. Takt can also be used to address product quality issues that the customer wants.

○ Create a pull system using kanban. A kanban (signal) system works like a supermarket. A con-

trolled amount of inventory sits in a predefined location. Consumption of that inventory sends a "signal" to production to replenish. This creates a clearly defined, fast-reaction relationship between consumption and production. It avoids the trap of using

long lead-time, computer-generated paper reports as production signals.

How a batch system works

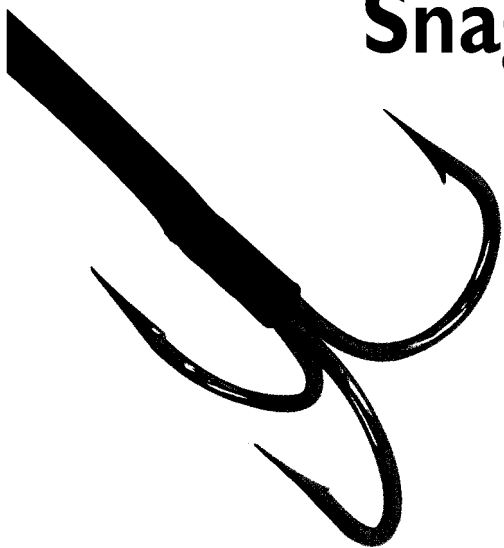
Many shipping operations are driven by batch production, which starts with logistics and works back into the greenhouse. Often the largest trailers are called for and the goal becomes to optimize this trailer space.

A large trailer calls for a large weekly batch size in load sequencing, which calls for a large batch size in sorting and handling, which calls for a large order for assembly operation, which calls for a large batch size in transporting from the greenhouse, which calls for a larger sorting and staging area, which calls for additional capital for building expansion. By focusing solely on transportation cost per cubic foot, greater costs tend to be driven up to support the batch system.

Large batch sizes require more time to build, requiring that the buildup of inventory start sooner. This means inventory sits in-process longer, resulting in warehousing of material.

Lean looks at the big picture, and

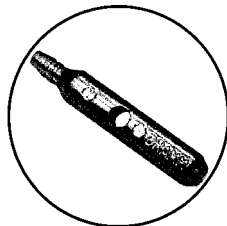
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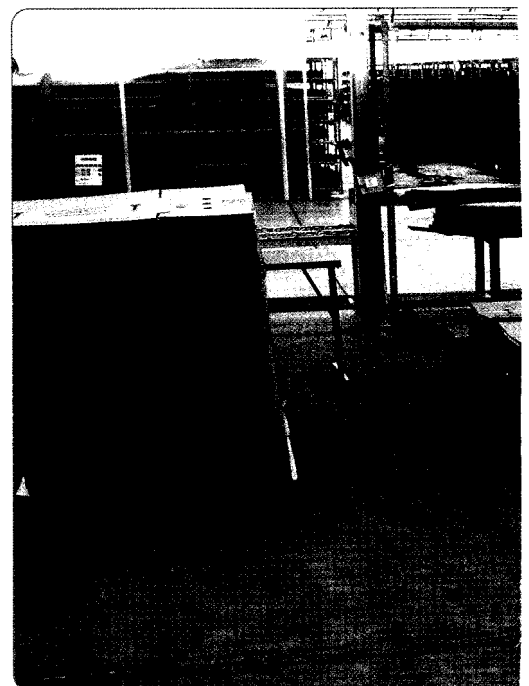


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In Lean, one week of cardboard is kept on hand. The vendor replenishes twice weekly, directly to the visual storage spaces on the floor.

may even decide to increase costs in one focused area, in order to drive down greater costs across the entire Value Stream.

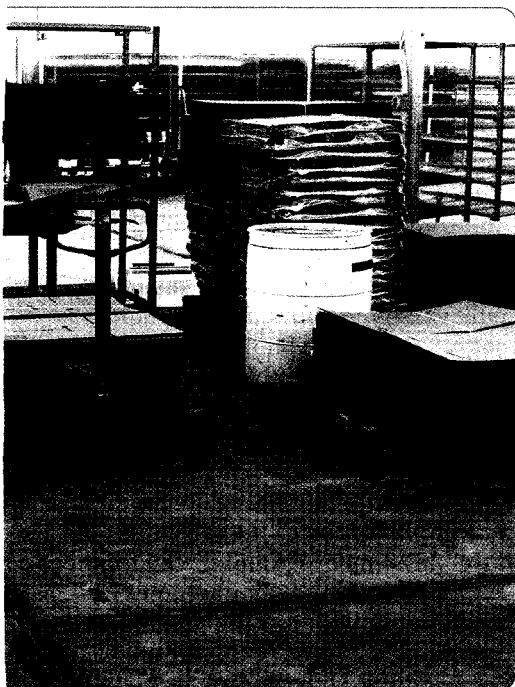
A closer look at the differences


Here's how batch production works, versus Lean production.


Batch system. A truck arrives that can carry 22 pallets (each pallet holds 30 boxes). In a typical warehousing operation, the product is transported by bulk by variety into a staging area, at least a day ahead of time. This first staging effort is driven by a summary report of customer orders printed several days in advance of the shipping event.

Employees move through the staging area, collecting specific combinations of material to build each order. Completed orders are staged for a second time and then labeled.

Completed orders are moved to the shipping area and restaged to support the proper drop-off sequence on the truck. An updated report of customer orders is distributed showing customer order changes, cancelled orders and added orders. Late-order additions can have trouble







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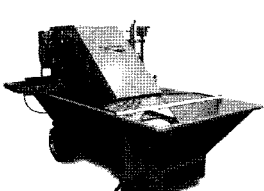
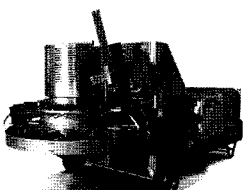
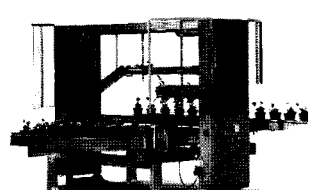
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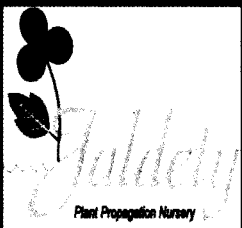
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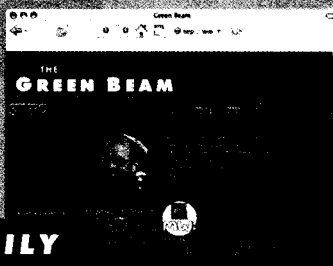
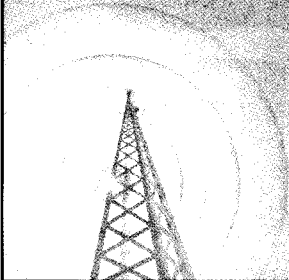
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To load a truck in the first bay, the forklift operator travels an extra 22 feet per trip because he has to maneuver around excess inventory that may not be loaded until the end of the day.

getting to the truck sequencing area because tomorrow's inventory is staged in the forklift path.

Lean analysis. By not building inventory days ahead of time and by reducing waste in the order-building activity, any truck can be loaded in two hours in the Lean cross-docking process. The shipping dock floor, driven by a kanban system, is used to only recombine from bulk variety to customer order and sequencing. The normally separate steps of order assembly and sequencing are combined.

A trigger signal from the truck visually communicates the most recent, and up-to-date, customer order information to the order assembly employees and truck loaders. The warehouse floor becomes a cross-dock with just the right mix and amount of product sitting on the floor in a controlled amount for a minimum time. As product is moved through the cross-dock it is



recombined to fulfill order and truck sequencing requirements. This eliminates days of storage and double and triple handling and sorting.

Start simple

Start by stabilizing your shipping and handling processes. In Lean there is a concept called the "branching effect of kaizen." As you stabilize your shipping and handling production processes with 5S and kaizen, your processes will become more capable.

As your production processes become more capable, waste will become more apparent in supporting processes such as inventory allocation, information technology, production planning, logistics planning, etc. This will enable the Lean transformation of supporting processes so that your organization is able to take on Lean applications that require a cross-functional approach, such as FIFO lanes and Lean cross-docking.

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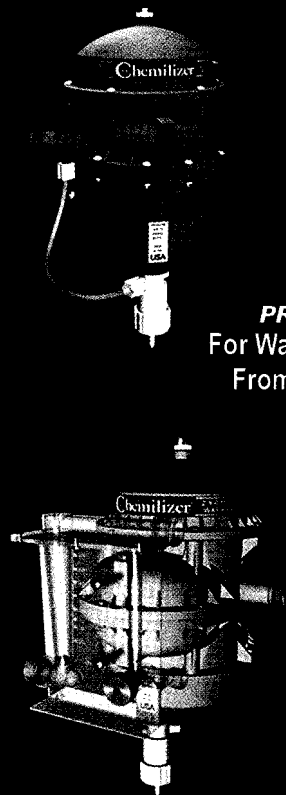
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