

Picking And Packing Strategies

It seems deceptively simple — match picking and packing strategies with your people, equipment and systems. Unfortunately, most catalogs get it wrong, and their costs show it.

As catalogs grow, expanding their customer base and adding SKUs, pressure often grows to reduce operating costs and increase customer service quality. One of the best ways to accomplish this is to make order picking and packing more quality-conscious and more productive.

This is easier said than done. Moreover, few operations can succeed by using only one strategy. But mixing and matching operational strategies and equipment successfully is a challenge. You have to weigh all the options and balance their applications to your specific needs.

ORDER PICKING

With demands increasing to improve current performance with faster delivery times, improved accuracy, and better efficiency, order picking is becoming more critical for a catalog's survival. Picking is a deceptively simple process: selecting the item the customer ordered from a materials-handling storage unit and placing the item into a container at the least cost. To accomplish this with optimum efficiency, however, requires a comprehensive order-picking methodology, material-handling storage equipment arranged in a forward layout, a properly organized picking document, and clearly defined and consistent picking methods.

Order-picking methodology is the system that defines how you pick orders. There are two fundamental approaches dictated by the storage equipment in the forward picking area: Either the worker goes to the stock or the stock comes to the worker. Within each of these methods there are three ways to pick orders: individual, batch, and sequential zone.

Sounds simple enough. But each method can be either a blessing or a disaster, depending on your overall requirements. The decision is not arbitrary, or even obvious. So let's take a look at what variables are appropriate for each combination of basic picking methods.

PICKER GOES TO STOCK

Referred to as "walk and pick," in this picking method the picker physically goes to where the stock is located. What about the variations?

Individual order: Here, the order selector picks an entire order until it is complete. This assures accountability because only one selector is picking the entire order. But it can be inefficient for picking a large number of items or a large number of orders, if the warehouse is large or if the picker has to select only a few widely dispersed items for each order.

Sequential zone: In sequential zone, also referred to as "pick and pass," several order pickers, each working a specific group of products in a limited space or zone, select items for an order as the picking slip passes from zone to zone. Since a selector need only be familiar with a portion of the total SKU population, this method increases accuracy. Training also takes less time. The everyday benefit of this method is reduced picker travel time per order because slips not requiring items to be selected can skip zones.

Multiple order batching: This combines a group of orders and creates a batch summary sheet or pressure-sensitive labels for the order picker to pick from. Using these, the order picker proceeds to each location, picking the quantity for all of the orders in the batch from each bin at one

time and placing them into a tote or box on a cart.

Order explosion and assembly: Order explosion and assembly requires computer assistance to break a batch of orders down into separate suborders that are batchpicked by sequential zone and conveyed to an assembly station. The orders are then "married" by an assembler who sorts the picked items into the original orders. At this point the assembler can perform the packing function, or orders can be sent to a separate packer. This method is most beneficial for picking thousands of items a day.

Hot or fast moving zone: This strategy establishes an alternate picking area for items that the cataloger expects to sell very fast (for example, items on special sales). It often requires setting up a picking location on a temporary basis for some items. This can be especially useful for current catalog items whose forward picking location would require them to be restocked daily during periods of high demand (daily replenishment is inefficient).

Group batch pick: This method, a variation on explosion and assembly, puts all orders for the day in one batch composed of numerous sub-batches. All the orders are then picked by zone in one wave through the operation, after which the batches from all the zones are sorted down to the individual order level. With this method, each location in the warehouse is visited only once. In effect, you create a mini-warehouse at the sortation site which contains only those items to be fulfilled. This method

reduces the amount of walking by increasing the batch size. For example, a picker may have a cart with 25 totes, each of which is designated for items to fill 12 orders.

Separate bulky ship-alone items: All catalogs have a few items that, in most cases are bulky and ship alone. These items are difficult to pick and should be picked separately.

Multiple picking locations: In this method, an item has both a forward location and a reserve location. Depending on the quantity required, the computer system directs the order picker to pick from the forward location for small quantities or the reserve location for larger quantities. This reduces replenishment and "not theres" for fast-moving items. It also reduces the labor involved in replenishing a forward pick location every few hours when both large and small quantities of an item are being ordered.

No forward locations: Up to this point all the picking methods have assumed that most or all of the picking is done from a forward picking location. In this method, however, there are no forward locations. Instead, all of the items are picked from reserve stock, which saves space and restocking time. The disadvantage is that it increases picking time.

STOCK COMES TO PICKER

Carousels which can save space, reduce picking time, and increase accuracy, are becoming more popular because of software advances that allow paperless picking. Until recently, carousels were sold for fast-moving products, but they were not well enough supported by computer software and led to frequent "not theres." Newer systems now employ carousels for medium-moving items. More important, they also use the computer to manage a digital "light tree" that directs the order picker to a carousel level, displays the quantity to be picked, and says in which box to place the picked items. With this method, a single picker can pick from two carousels at once. (This is also an example of paperless picking, which follows).

PAPERLESS PICKING

One of the more exciting recent advancements is paperless picking. Eliminating the pick document can greatly enhance picking productivity. In addition to pick-to-light (described below), picking can also employ barcode picking with a portable data terminal. These options require a capital expenditure beyond what you will spend for inventory stocking and conveying, but they may be a wise investment.

Pick-to-light: This method harnesses the power of the computer to direct order picking. Replacing paper pick lists, it uses a light to direct the worker to a location.

One of the more popular systems using this method is CAPS (Computer Assisted Picking) from Kingway. (See photo on page 35.) CAPS combines a computer and light displays with gravity-flow racks. Modular digital display lights mounted on the flow rack or shelving unit direct the picker to the location and display the quantity to select. Since paper handling is eliminated, catalogers achieve savings in time. Additionally, users report an increase in accuracy. Barcode picking: More and more companies are moving toward barcode order picking, which requires picking data to be loaded into a portable data terminal equipped with a barcode reader. The order picker follows the screen prompts on the portable data terminal to each location, wands the barcoded "license plate" at the location to verify that he or she has reached the correct one, then reads the number of items to be picked (displayed on the screen). The license plate is scanned for each item picked to ensure accuracy. Because it is paperless and verified, this method increases picking productivity and accuracy. Many users of this system describe accuracy above 99.9 percent.

DESIGNING YOUR OWN ACTION PLAN

A basic goal in selecting systems, is to reduce walking. Order pickers spend more than 70 percent of their time walking and searching for an item. The next most time-consuming task is paperwork. Obviously, you should take steps to minimize these activities.

Here are some tips on how to evaluate your own operation to determine which methods to adapt.

Look for hybrid solutions. Since few catalogs have stock that is uniform in size,

weight, and popularity, the optimal system is probably a hybrid solution— one that uses more than one method.

Employ batch picking. For catalogs with a large number of items and orders to select, savings can result from picking orders in batches. This is mainly because the majority of the order picker's time is spent walking. Batching reduces walking.

Replenish items weekly. A rule of thumb here is to keep one week's supply of an item in the forward picking area.

Pick bulky items separately. Items that ship separately should be picked separately.

Pick the order to the box. Pick items directly into the shipping box, wherever possible.

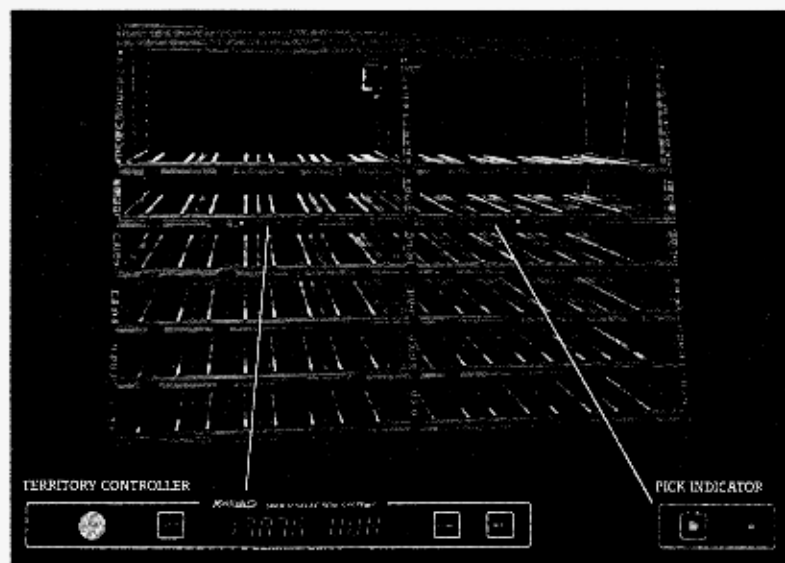
Learn item characteristics. Arrange items randomly by activity, grouping faster movers close to the packing area.

Employ combinations of picking slot types. Determine the best fit for each product—pallet rack, shelving, flow rack and carousel—based on the cubic sales movement requirements.

EQUIPMENT AND LAYOUT

Because of the growing number of items catalog companies are stocking, planning forward-picking area layouts is extremely important. A haphazard forward-picking layout wastes labor, space, and equipment.

Once you have determined the order-picking strategies or methods you are going to use, you can begin to select the material-handling storage equipment for your forward picking locations. Unfortunately, wide choices in equipment types and manufacturers make this a difficult assignment. You need to take functionality, product



Computer Assisted Picking combine a computer and light display with a gravity flow rack.

Courtesy, Kingway

movement characteristics, physical product characteristics, flexibility, and return on investment into consideration.

Don't let yourself be oversold on any one structural solution. For example, one catalog company learned that placing all of its items in a flow rack minimized order picker travel distance but created replenishment problems. Overworked replenishers could not keep up with picking demand.

FORWARD SLOT MANAGEMENT

To determine the space and equipment you need for a one-week supply, calculate the cubic volume requirements as follows:

Cubic space required = Length x width x height x one week's sales in units

Example: 5" x 7" x 4" x 12 = 1,680 cubic inches.

Using the amount of cubic space you have calculated, determine which materials-handling and storage equipment is the best fit for each item.

Another important layout factor is how to accommodate products that are often ordered together to reduce picking time. A gardening catalog offering tomato seed, tomato starter formula, and tomato stakes may want to keep all these items near each other because the probability is high that they will all be ordered together.

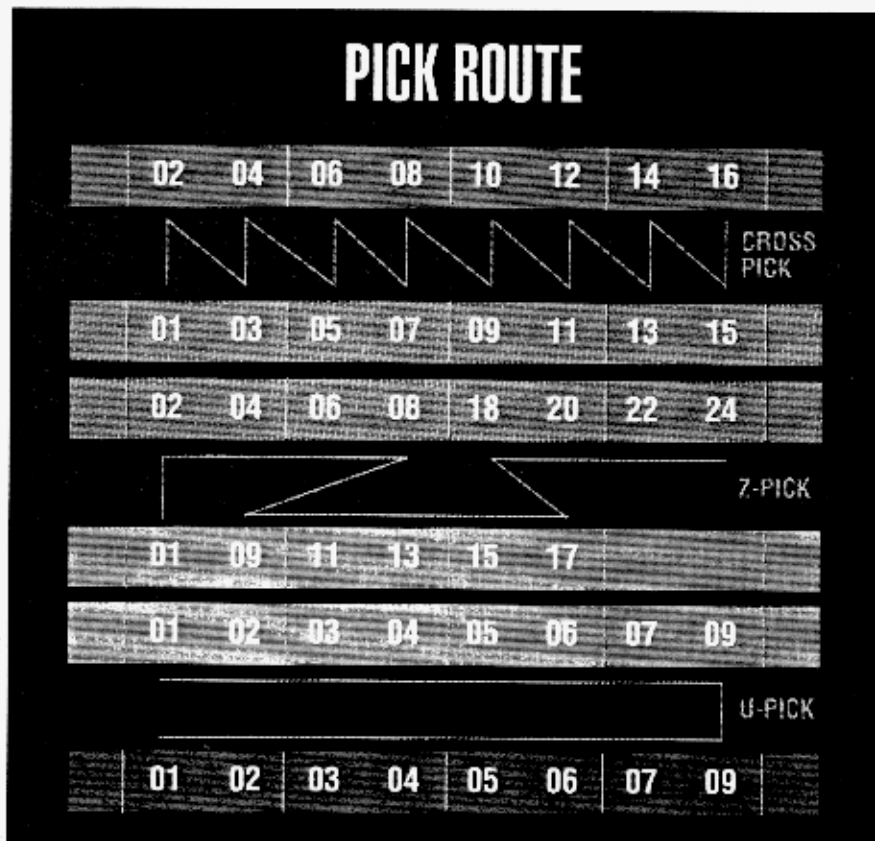
If you are making frequent changes in the catalog items you carry, use the computer for forward slot management to help determine the best use of the forward picking area. This slots items in the forward picking location based on such data as sales movement and product volume characteristics.

One program dedicated to forward slot management is Slot-it Master from Performance Analysis Corporation. Slot-it Master is a PC-based program that is easy to set up to receive sales data that is uploaded periodically. Using this information, the system can tell you if the item needs more or less space for optimal picking and replenishment productivity.

PICK DOCUMENT, ITEM AND LOCATION IDENTIFICATION

A straightforward picking document, clear item-and-pick-location identification, and a strategic pick route are essential to efficient, error-free order picking. Let's look at some of the fine points involved with each.

Design the picking document for the order picker's ease of use. Reading the pick



Merchandise mix and volume help determine which picking route makes the most sense.

document quickly requires good lighting, legible printing, and good design. A pick document that is difficult to read and understand slows the process.

One company reduced errors and improved efficiency by redesigning the picking document to put everything in the proper order:

Additionally, when listing descriptions, use the same description that the manufacturer places on the box. It is not uncommon to find different descriptions on the pick document, in the catalog, and on the box (the

Warehouse Location Qty.	Color	Size	Description Item #
01-01-03 1	Red	7	Sweater /22227262

order says "Shampoo 88" and the manufacturer's box reads "Shampoo 88-B," for example). One catalog company was surprised to find that more than 21 percent of its items had descriptions that did not match.

LEGIBLE LOCATIONS

While a well-designed pick document describes to the picker where to find the items, the warehouse location identification allows the picker to arrive at that location quickly. Location markings should be

large, legible enough to be read while walking toward the location, and illuminated with light levels at a minimum of 50 foot candles at 36-inch elevation.

Placing locations on magnetic strips can make the system very flexible. But you still have to use the strips right. Don't let a worn printer ribbon dull your IDs, for example. One catalog company was able to increase productivity simply by regularly changing its print ribbons and increasing the lighting in the aisles. This also reduced picking errors.

Many catalog operations direct the picker to a shelf location but then require the picker to search for the item on

that shelf. Engineering time studies reveal, however, that a trained worker can pick an item 3.4 seconds faster when given the exact shelf location. In fact, one catalog operation picking 120 lines per hour realized a 10 percent increase in productivity after specifying bin location on the shelf.

THE PICK ROUTE

How you direct your picker through the picking layout will affect productivity. The pick route is the path through the picking area that the order picker takes. The

way you number locations and print the orders determines the picking path.

There are three ways you can send an order picker through a picking area: U-pick, cross-pick, and Z-pick.

There is no "right" method to use. Examine your orders, your merchandise mix, and your volume to determine which method or combination will reduce your picking walking and time.

CHECKING AND PACKING

Picking is only half the story. Packing can be an opportunity for quality checking and closing the data processing loop—or it can be a source of great inefficiency.

The packer's goal is simply to ensure that the right items are securely packed in a shipping container. But, as with picking, there are a number of approaches to this apparently easy task.

PACKING METHODS

Conventional packing: This method requires the packer to do it all—select the shipping container, check the items while placing them in the container, add dunnage, and label and seal the container.

Check and box: Here, separate checker inspects for accurate order fulfillment. This can include checking the item count, checking the description (visually or by wand-ing a barcode), and checking the weight of the order. Operations that use separate checkers are reporting fulfillment accuracy above 99 percent.

Central dunnage and sealing: Central dunnage and sealing removes the packer from the repetitive, time-consuming tasks of adding the dunnage and sealing the carton by assigning these tasks to one or more other workers. For even greater efficiency, the dunnage and package sealing can be automated.

What makes packing a challenge are the varied sizes, shapes, and other physical characteristics of the items you ship. Simplifying the packing methods used and adding semi-automated tools and resources will increase productivity.

Packing is very labor intensive. The most successful way to reduce that labor is to pick directly into the shipping container. This also eliminates tote handling and box selection. Another option is to decrease the number of carton sizes. Fewer shipping cartons saves storage space and limits decisions about which container to use.

PERFORMANCE MEASUREMENT

You need to monitor any system that you design to see whether or not it is working optimally. The management performance measurement you use is a key ingredient in evaluating your operation's success. It is the measurement system that

provides feedback to the manager—identifying process measurements, calculating how many orders or lines the operation and the worker perform in a day, and tracking individual worker measurements. These statistics are important for determining total resource staffing and individual worker evaluation. Measure each of the following daily:

- order picking and packing
 - total lines picked and packed
 - total orders picked and packed
 - average orders and lines picked and packed per hour
 - stock outs or manual back-orders
 - errors found
 - dollars/order
- individual worker measurements
 - total lines picked or packed
 - total orders picked or packed
 - average orders and lines picked or packed per hour
 - errors found

Measuring this data daily for every worker, including temporaries, will show you which workers need help and will identify the better workers. All superior operations use these measurement systems, reporting at least a 10 percent improvement in productivity after their installation. Measurement systems are also an important tool managers can use to assess the impact of any changes in picking or packing procedures.

Your order picker cannot pick an item if it is not in the pick location. Arriving at the location only to find that the item is missing is frustrating. It can also be costly by creating a manual back-order. Monitoring shows how bad the problem is and points to its cause—poor replenishment systems, receiving errors, shrinkage, or scheduling problems, for example.

TRAINING IS ESSENTIAL

Poor training can cripple even the best system. Yet many companies do not give new workers written instructions but entrust their training to the buddy system. Workers training other workers results in inconsistent training. It is unlikely that the same training will be conveyed to each worker.

Furthermore, if a worker is not told by management what to consider a job well done, you can guarantee that the work will not meet your expectations. Your pickers and packers will develop their own expectations, and they will be lower than yours. If management doesn't care enough to tell employees how to do the job, then they don't care either.

Poor training and lowered expectations also tend to have a domino effect, compromising performance in more than

one area of your operation. You can design an outstanding system, but the chances of its working are slim if your employees do not understand it.

The obvious answer is to invest in developing and implementing a formal training program that will ensure that all order pickers and packers are trained uniformly. The training program should include all of these elements:

- a clear description of the work and how it fits into the total operation
- a sample and explanation of the pick document and how to mark it correctly
- specific and detailed procedures to use when picking an order
- management's expectations and performance benchmarks (for example, 110 line items per hour, with one error in 500 orders)
- the rewards of performing and the consequences of not performing to management expectations
- the effect of a picking error (from customer service costs to losing a customer)
- instructions on what to do when a problem develops

CONCLUSION

Picking and packing are separate disciplines, but they need to be coordinated to succeed. The total system you design should balance the two, using methodologies that make sense for your merchandise mix — materials-handling and inventory management equipment to reduce labor and optimize picking routes and packing productivity; and computer programs to produce the necessary paperwork, support documents, and confirmation routines.

Once designed, these operations must be staffed with employees who are trained properly. Last, the process should be measured to determine how well it is running. This will make the difference between an operation with poor productivity and deficient quality and one with fewer fulfillment errors and lower operating costs. ■



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