What's New in Research

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Improving Warehouse Efficiency – Maximizing Cube

by
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The T. J. Morris Company is a small wholesale grocery company located in Southeast Georgia with a present volume level of approximately 30 million annually.

This is the first meeting of this organization I have attended and I really feel out of place to be doing any talking. I'm sure there are many present who know much more about the food business and about multi-level storage and selection than I do so I'll be brief and try to spend the remainder of the meeting listening and learning.

I am, however, honored to be here and to have this opportunity to tell you a little about our relatively brief experience with this particular type of operation.

We moved into our new facilities one year ago and began using a PIR or Planned Item Retrieval system with multi-level storage and selection of relatively slow moving grocery items in order to get maximum use of the square footage in the building.

We began operations in the new environment with two aisles of PIR storage of grocery items and two aisles of PIR for our nonfoods division. We found the PIR system did not work satisfactorily for the health and beauty aid portion of our nonfoods division and have since moved this section out to another building and are using flow racks there.

However, the PIR system is working quite well for the slow turn grocery items and that is what this information is limited to.

In our dry grocery warehouse we have a total of 102,704 square feet, 66,600 square feet of that is used strictly for grocery storage with the remainder being used for nonfoods, truck docks, rail siding and dock, etc.

We are using 76% of that storage area for conventional dry grocery storage and 24% for the multi-level section.

Within the 76% portion we have housed 52% of our line items with 48% being in the PIR section. In other words, we have 48% of our line items using 24% of our available floor area.

We are using a seven level rack configuration with 32 x 40 pallet slots. The bottom level and the top level take a full height pallet load, the second

tier is used for "hand stacked" merchandise and the other four tiers are used for half high pallet loads.

We determined which items to put in the PIR section based on the following criteria:

1. Average maximum inventory of the item was 1½ full height pallet loads or less.

2. Unit size of not more than 1½ cubic feet.

3. Unit weight not to exceed 20 pounds.

4. Tobacco, gun shells and bagged items excluded.

5. All items with vendor case ratio greater than one were put in PIR.

The PIR racks are divided into three sections from front to rear and merchandise that is the fastest moving of that in this area goes in the front or "green" section with the slowest of these slow movers being at the far end section.

A "floating slot" system is used in the PIR section so all merchandise is put directly into the slot it will be selected from. This is done entirely by fork lift except for merchandise going into the "hand stacked" level.

On receipt of a shipment, the receiver learns from the receiving document which "color" section the merchandise is to be put in. Then he determines from the cube and vendor ratio which tier it should go in. He then selects a plastic tag from the appropriate "available slots" box and has the shipment stored directly into any available slot in the proper color section and tier.

Obviously, different shipments of the same item will go to different slots and the computer is depended upon to route the selector to the slot with the oldest merchandise each time.

The plastic tag system provides easy, systematic control of the slots and a check is made each day of physical available slots with the computer report of open slots. This also provides good inventory control as a check is automatically made each time a slot is emptied comparing computer records with the physical situation.

It has been difficult for us to develop much reliable data as to comparative selection productivity comparing conventional selection areas with PIR because of a number of duties pertaining to each that are not common. However, it appears to us that pure piece selection rates are about the same in the two systems.

It appears to us that the multi-level system is valuable at least from the standpoint of conserving space. Further, we are experimenting with various selection route possibilities in the PIR section, with batch picking and other minor refinements which we expect to improve productivity to some degree.

All in all we are pleased with the system and feel that it has a place in our industry.

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