

## ROLE OF THE FOOD DISTRIBUTION INDUSTRY IN CURRENT AND LONG RUN RESEARCH EFFORTS

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Discussion Leader

1. Automatic checkout
2. Relationships between small independent retailers and their wholesale suppliers.
3. Meat systems
4. "Coordination" of distribution between farmer and consumer
5. Costs and benefits of "consumerism issues."
6. The broad area of man-machine problems
7. "Integrity gap" between consumers and businessmen
8. The qualitative vs. the quantitative approach to food distribution research
9. The effect of increases in efficiency of distribution on the society
10. Possible coordination between FDRS, AMA and Bureaus of Business Research

NOTE: This listing is chronological and does not indicate priorities.

## ROLE OF THE FOOD INDUSTRY IN AUTOMATED WAREHOUSES

Wednesday Morning - October 28, 1970

Moderator: John C. Bouma, ARS, TF, USDA

Panelist: Fred Hodge, Director,  
Engineering Systems Division, FMC Corp.

Mr. Hodge showed slides and described the mechanized handling system for produce and dairy-delicatessen items installed by his company at Star Market Co. Boston, Mass. Order selection is done on a mezzanine 10 feet above the floor in three aisles. The mezzanine is supported by the pallet rack structure on either side. Pallets are stored one deep in all locations, except one row where two deep storage on pallet flow racks is used. Replenishment aisles are separate from the selection aisles.

The warehouse is divided into two sections by a crossover aisle running beneath and perpendicular to the selection aisles. One half is for produce items. Most items are canned goods, but baskets, bundles, crates and similar packages can be handled under certain conditions.

A waist-high belt take away conveyor runs down the center of each aisle, A

sequential selection list is prepared by a computer and it combines three store orders at once. This list guides the order selector who selects merchandise from racks, craysons a large code on each item according to loading station, and places merchandise on the belt conveyor.

The three conveyors are merged into one line at two very precisely controlled merge points. By spacing and metering, the merchandise is brought into a single flow without contact between pieces usually required by accumulation systems.

The main line conveyor passes a console station where an operator reads the crayoned code on each unit. Pressing the appropriate key causes the case to be automatically diverted from the main belt at the proper downstream loading point. After being diverted, the units are conveyed down to loading tables from which they are manually lifted and placed on pallets. The full pallets are accumulated in gravity pallet flow lanes to loading doors. Pallets are loaded in delivery trucks by fork truck.

Mr. Hodge said that of the 250 items handled in the warehouse, 200 are being moved by the system. A series of tests have been run to determine what size and type packages could be best handled by the conveyors. Large bags of potatoes and onions have proved too bulky for the conveyor belts.

Panelist: Gene E. Mapes. Manager,  
Distribution Facilities and Systems  
The Kroger Company

Mr. Mapes presented a film developed by FMC Corp. on use of the Picmaster at the Kroger grocery warehouse in St. Louis. Order selectors are accomplishing 550 cases per man hour and palletizers are working at the same rate. Mr. Mapes indicated that although they have had technical problems with the system, these problems have been resolved and the system is working satisfactorily. Although the Picmaster system was installed in an existing warehouse in St. Louis, a warehouse designed for the systems was built in Nashville with a 32-foot ceiling height in the grocery warehouse. Mr. Mapes apologized for not being able to provide a tour of the St. Louis warehouse. The warehouse had been closed for two weeks in order to make some necessary equipment changes and was not in condition for a group tour.