

Computerized Grocery Checkout

How Does It Work?



A Western Regional Extension Publication

**WR
EP**

WAGNERS
BEND OREGON
THANKS YOU
03/15/78

NFO	2.99H	NYLDNS
NFO	.86H	ANTACIOS
GRN	.89H	BAGS
GRO	.27D	
UY	.59D	COT CHEES
GRO	2.59D	
GRO	.58D	TUNA
GRO	.47D	BAKE BEAN
GRO	.40D	WHOLE COR
GRO	.39D	WHOLE COR
GRD	.29D	G HDMINY
GRD	.40D	WHOLE COR
GRO	.49D	GRN BEANS
GRO	.49D	GRN BEANS
GRO	.41D	EVAP MILK
OY	1.58D	MILK
GRO	.72D	CEREAL
GRO	.53D	PDRK BEAN
GRO	1.59D	TRASH BAG
GRO	.51D	BEANS
OY	1.37D	BUTTER
GRO	2.15D	SALMON
GRN	.99H	CHARMIN
GRO	.93D	CK MIX
GRD	.43D	MIXED VEG
PRD	.59D	PEPPERS
PRD	.29D	RED BULK
	2.44LB	
	5LB/	.59
PRD	.29D	
	.86LB	
	3LB/	1.00
GRD	.79D	BEANS
GRO	.47D	BEANS
GRO	.43D	
FR7	.78D	DRANGE JU
GRN	1.86H	.47
MT	4.81D	
MT	2.88D	
MT	3.67D	
MT	3.85D	
PRD	.69D	APPLES
	2.06LB	
	3LB/	1.00
GRN	.49H	PPR TOWEL
	44.63	TOTAL
	45.00	CASH
	.37	CHANGE
8005	15 7	2.04PM

Computerized Grocery Checkout--How Does It Work?

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A Marketing Issues Paper of the Western Extension Marketing Committee—WREP 3

The Universal Product Code (UPC) represents the first step toward a fully electronic cash register and checkout system. In 1973, the grocery industry adopted the UPC bar symbol as a method of marking food items. It is a series of black bars and spaces of varying widths, which can be attached to the container wrappings of almost any kind of merchandise.

The numbers under the lines are for identification. The first five digits identify the manufacturer, who uses the same five digits on all its products. The last five digits identify the product by content, description, size, and preparation. (A symbol with only 6 numbers and bars is used for small items like candy and gum so it will not detract from the package design.)

The arabic number which stands alone to the left of the black bars identifies a large category of goods. For instance, the "0" means prepackaged grocery items. A "3" would stand for drug items.

The function of the markings is to give each item a computer readable label no other item will have. The UPC symbol has ten billion possible food labeling combinations. Currently, approximately 70 percent of all grocery items are marked with a Universal Product Code symbol.

None of the numbers in the UPC symbol indicates a price. Instead, the price must be programmed into the in-store computer, usually by each store manager. In case of price changes, the computer is re-programmed to match a particular product with its new price.

Here is how the UPC works in a store with computer checkout equipment. The store has an electronic cash register (point of sale terminal) at the end of each checkout lane. An electronic scale for weighing produce usually will be part of the cash register system. The whole system is hooked into an in-store computer. Also built into each check-stand counter is a scanner or laser beam. The beam does not affect food or packages and the Federal Trade Commission states it does not pose any hazard to health.

The checker, who is still part of the scene, slides the item from the grocery cart over the scanner so it can read the UPC symbol. The scanner instantly translates the symbol markings and sends it to the store computer and its memory bank. The computer in turn sends back the item description and price, which flashes on a viewing screen on the register for the customer to see.

Simultaneously, the electronic register prints out a receipt which contains a wide range of information, such as item description, cost, coupon discounts, food stamp items, date, change due, check verification, and bottle deposit returns.

When there is no UPC symbol, the checker will ring up the item manually, using an assigned code number. The computer will take it from there. The computer even calculates three-for-one sales when the items have been separated in the basket.

Going Priceless

The individual price marked on each item has become a source of concern to shoppers. Scanning itself is not the issue, but rather the possibility that price markings on each item will be eliminated. In a recent study conducted by the Progressive Grocer and Home Testing Institute, consumers rated *clearly labeled prices* as number one on a list of 37 factors affecting their store loyalty.

Evidently, many consumers feel price marking of individual items is essential. Why do they feel this way? First, if the price is not on the item, comparison shopping would be difficult and complicated. For example, comparing the price of different forms of food—fresh, frozen, or canned—would require either a superb memory or trips from aisle to aisle to compare prices.

They also fear stores could manipulate prices at the customer's expense. However, supermarkets are not likely to risk creating a dishonest image. Consumer advocates also say that the price flashed on the visual terminal is done so quickly that it hardly allows the shopper enough time to match the purchased product with the price.

Pressure against removing prices from individual items also comes from labor unions who fear the loss of jobs and membership if individual price markings are eliminated. Emotional feelings on the issue have run high and legislatures in several states have been busy pursuing laws to make item price-marking mandatory.

In March 1976, the public policy subcommittee of the food industry ad hoc committee on Universal Product Code recommended that scanner-equipped supermarkets retain price markings.

The recommendation generated an almost unanimous feeling of disappointment in the industry over the loss of savings—estimated at 23 percent to 30 percent of the total savings available—if price marking labor cannot be eliminated. Many executives with scanning experience feel the recommendation has slowed the installation of scanning equipment. Others, however, point to other benefits as a reason such installation will continue.

Probably influencing the policy committee's decision was a study contracted by the committee and conducted by Michigan State University and the University of Vermont. Stores equipped with scanners and shelf-pricing placards only were compared to conventionally equipped stores with individually marked items. The study surveyed nearly 3,000 shoppers in a program which included interviews at the point in the store where items were selected, at the checkout counter, and home phone interviews.

The study found that at the point of selection, 96 percent of shoppers in conventional stores could give the correct price of an item selected, compared to 88 per-

cent in the scanner stores with shelf pricing. Price awareness at the checkout counter was also higher in conventional stores. For products selected by shoppers from items in their carts, shoppers in conventional stores named the correct price 71 percent of the time, compared with 56 percent for shoppers in scanner stores. When the interviewer selected items from the shopper's cart, shoppers in conventional stores were correct on the price 56 percent of the time, against 41 percent for scanner stores.

The study also indicated that store type (scanner or conventional) is related to in-home price awareness. In the first telephone interviews, shoppers were asked to give the price of a product that the in-store interviewer had noted the shopper bought, but had not asked about. Only 20 percent of the respondents from scanner stores, compared to 31 percent of conventional-store shoppers, gave correct prices.

Finally, during the first two-week test period, 47 percent of the scanner store shoppers switched to another store, compared with 31 percent for conventional store shoppers. A similar pattern occurred in the second time period. Thus, shoppers at conventional stores appeared to exhibit less store switching than those who were shopping in stores with computerized checkouts where prices were removed from individual items. The study noted that the switching decision is based on many factors, but among them might be the store's checkout/pricing system.

Most stores are following the industry's recommendation that prices be marked on all items. Even with prices left on, it is estimated UPC will still realize up to 75 percent of its promised savings.

The grocery industry needs to consider the good will and loyalty of the consumers who guarantee its existence. After all, consumer acceptance and satisfaction are vital to the success of the electronic checkout.

Esther Peterson, formerly of Giant Foods, says, "We've concentrated so much energy on the problems (of UPC) that we haven't begun to look at the benefits. Price marking is miniscule compared with other issues. Let's cool it until we know more."

One success story involving price removal comes from Holiday Foods in Seattle, which has scanning equipment in four supermarkets. Currently, the company is not price marking individual items. Customers accept this and business has increased.

Several reasons account for Holiday Foods' success. The company was very thorough in telling its customers what it was going to do. Starting 3 months before the scanners went on the line, it distributed bag stuffers, advertised the change in the papers, and contacted the news media. The publicity campaign emphasized that the cash register slip would print the name of the item and the price, and give the weight and cost per pound of produce.

For the first 4 months after the scanner was installed, Holiday Foods left all the prices on the merchandise. Then they started to experiment. For 2 weeks they took the price off gelatins. When the price was put back on, customers apparently did not notice the difference. The stores then took the price off dog food. Again, no one said anything. After that the stores gradually removed all the prices.

Holiday Foods reports substantial savings, which are passed on to consumers. The store in which the scanner was introduced increased volume by 25 percent in

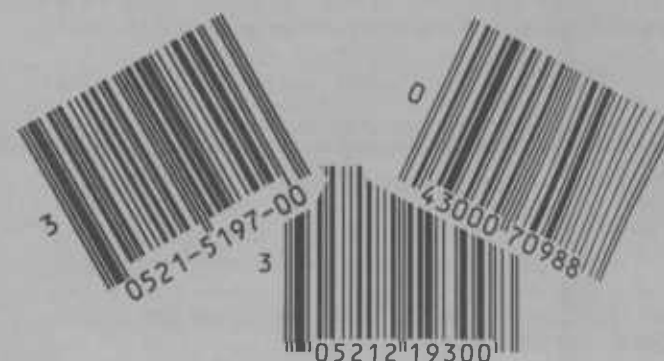
2 years without increasing the number of employees (a savings of about 2½ people). The company attributes the higher volume to lower prices and, in part, to the novelty of the scanners themselves.

Looking toward the future, the grocery industry might well give some attention to a better shelf-marking system. Consumer groups have complained that shelf prices have not been well maintained or accurate, and at times are not located adjacent to the product. The food industry acknowledges some shortcomings in this area in the past and promises better performance in the future.

Consumer Advantages of the UPC Codes

The computerized checkout seems to promise greater efficiency and economy for both consumers and the food industry. Consumer advantages include:

- 1) A significant reduction in checkout time and the shorter lines at check stands. Wagner's Supermarket in Bend, Oregon, reports that checker productivity has jumped 50 percent since the scanning system was installed.
- 2) A greater degree of accuracy in ringing up items. Because the price codes on most products will be scanned optically and recorded, there is less room for error by the clerk. Considerable inaccuracy now exists at traditional check stands because of illegible price marks, incorrect prices, and human errors. These would be eliminated by the UPC checkout system.
- 3) Improved customer service. The data supplied by the new electronic system will help stores schedule checkout personnel in accord with customer traffic. It also will lessen the chance of advertised items being out of stock.
- 4) The customer will receive a more descriptive and detailed sales receipt.
- 5) The computerized checkout will make for ease in check cashing. A UPC computer can hold 24,000 check-cashing authorizations.
- 6) Part of the net savings from the new system may come back to consumers in the form of lower prices. However, industry spokesmen are making no such promises. "We have no idea of definite savings, just estimated savings," one food executive points out. The stores may choose to put their savings back into their facilities or their stock earnings. However, because of the intense competition in the food industry, once the equipment is paid for competing stores probably will be forced to distribute some of the savings to their customers.



Industry Benefits

Industry classifies the benefits it can gain into two categories—*hard* (direct) *savings*, and *soft savings*. *Hard savings* result directly from the use of the equipment. *Soft savings* result from use of data generated by the equipment.

Hard or direct savings include:

- front-end labor reduction
- mis-ring reduction
- cash register balancing
- coupon control
- a better check on specials
- labor reduction, if price marking is eliminated

One supermarket chain reports that its front-end labor productivity has improved about 18 percent as a result of computerized checkout. At the same time, grocery, dairy, delicatessen, and liquor inventory loss dropped 25 percent. The reduction inventory loss was a direct result of reduced cashier error and of retail price control from a central source.

It is still too early to evaluate the soft savings that are possible from the computerized checkout. It is estimated that there are twice as many dollars possible in soft savings as in hard savings.

Ralph's Grocery Company, a California-based chain, has seven fully equipped scanning stores and a long-range plan toward a chain-wide communicating network of scanning stores. Based on current projections, the company predicts a savings of \$750,000 a year in current bookkeeping on a chain-wide basis.

Another useful *soft savings* is *inventory control*. Today's supermarket has the option of stocking over 32,000 different products. UPC can provide an exact and perpetual inventory. The computer will track the most popular brands in the store and allow stores to reduce the stock of slow-moving items. Stores also should have less difficulty in predicting customer demands, especially for sales items. The computer will re-order stock as it is sold, reducing the possibility of fast-moving items being out of stock. In addition, the computerized checkout can provide information on better shelf allotment and product placement.

For the first time, retailers and manufacturers can receive feedback on ads and promotions to determine what strategies have or have not worked early enough to do something about them. Also, they can look at actual sales data on a timely basis previously unattainable. Other soft savings include: quicker evaluation of new products, merchandising suited to clientele and neighborhood, vendor analysis, and price management.

It is virtually impossible to foresee all the savings created by scanner information and to assess the marketing advantages associated with scanners. Data on these new systems is difficult to obtain. Only a few stores have the electronic checkout with scanners. Moreover, stores with scanners have been reluctant to share the information they have gathered. But the potential for savings at the store and in the system appears to be great.

Future Growth of Computerized Checkout

At the end of 1977, according to Food Marketing Institute, about 210 pilot stores around the country had computerized checkout registers with scanners. Despite the increase in scanning tests, retailers appear reluctant to fully implement the electronic checkout.

There are good reasons for this. First, the equipment is expensive. It costs about \$20,000 to equip one check stand and an average-sized store would need at least five, which would mean a minimum of a \$100,000 investment. Some stores would need at least 10 check-out stands. Supermarket chains need the system in all their stores to be effective, which requires an even larger capital investment.

The industry is also slow to switch to computerized checkout systems because only about two-thirds of all items in supermarkets have a Universal Product Code, and that doesn't include fresh meat and produce.

At the beginning of the UPC program there were at least 15 manufacturers of electronic checkout equipment. Now there are about 6. Industry thought computerized checkouts were going to be installed much faster than they have been. The sale of electronic cash registers continues unabated, but many retailers are still not investing in scanners. They find the electronic cash registers fast, accurate, and able to provide substantial record-keeping information. A familiar comment is that scanning is for the future. However, firms now involved in scanning tests report enthusiastically on increased efficiency, accuracy, and inventory control.

Although it's a slow, costly process, some industry spokesmen predict that in 10 years the computerized checkout scanner will be common in high-volume stores. In the meantime, there seems to be a need for more consumer education on the electronic scanner checkout system. Although more than half of the respondents in a 1977 study were able to identify the UPC code symbol, most of the consumers interviewed said they didn't know what UPC was all about. Little has been done to develop a positive consumer education program because efforts have been concentrated on reaction to consumer activist's charges. If consumers understand the system, perhaps they will be more willing to accept it.



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