50th National Agricultural Conference

UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

UNIT PRICING AND OPEN DATING TODAY AND TOMORROW

Talk by Eileen F. Taylor
Marketing Economics Division
at the 1972 National Agricultural Outlook Conference
Washington, D. C., 2:00 P.M., Wednesday, February 23, 1972

In the past ten years, the vocabulary--perhaps the very essence--of food marketing has seen some rapid changes. Old words have taken on new meaning and totally new words have been added. Consumerism doesn't appear in the dictionary--but I'm sure you know its meaning. Class action and nutritional labeling have very specific meanings--again not in the dictionary. Phosphate is in Webster's but the definition makes no mention of your family laundry. Phase is in there also, but Phase I and II today have a meaning Webster might not have dreamed of. If you have been in a grocery store lately you know that many new products have imaginative names that, by themselves, might or might not tell you just what is in the package. Many new sets of initials are around and I was just beginning to learn the old ones! And there are some old initials we are hearing more about. There is GRAS; NTA; FPLA; CLC; and FTC, according to some, has a whole new meaning.

I'd like to talk to you this afternoon about two fairly recent phrases that should be of interest to consumers and food marketers--unit pricing which doesn't really have to do with the pricing of units, and, open dating that has nothing to do with courtship.

Both of these consumer information tools have received widespread attention from consumers and their representatives, the food processing and retailing industries, government agencies and legislators. Bills have been introduced on Capitol Hill and in scores of local jurisdictions to require one or both. Two open dating ordinances have been passed and one, in New York City, is in effect. In addition, three unit pricing laws have been enacted. The most recent bill in Congress, S. 3083, introduced in January

1972, includes provisions for open dating, ingredient labeling, nutritional labeling and uniform quality grades. No action has been taken at the Federal level but it seems likely that hearings will be held in the next few months.

The USDA has not been directly involved in research on unit pricing, but I'd like to give you a brief summary of what other groups have compiled on the subject. While a few co-op organizations have offered some form of unit pricing for years, only in the last two years has the practice become widespread. According to the National Association of Food Chains, over 100 retail food chains now have unit pricing systems. These companies represent a significant share of food marketing and their stores are located in major population areas. In other words, in most principal cities, unit pricing is available to the shopper who wants it.

Several chain organizations tested one or more methods of unit pricing before selecting one to introduce on a large scale. Calculators--the little wheels you have all seen--were tried. Some were given to shoppers, others were attached to the carts. Banners or posted listings of prices were used and, of course, shelf tags. Generally speaking, some type of shelf tag is now in use by most companies. Many use computer printed labels that stick smoothly to the shelf edge. Others use more colorful machine-printed tags. While there now seems to be less resistance to unit pricing and some agreement on <u>how</u> to implement it, there is less agreement on other aspects.

Opinions on consumer use and understanding of unit pricing and the costs for retailers vary widely. In preparing these remarks, I looked through the materials I have gathered on unit pricing during the last three years. I found almost as many evaluations of costs and use as I had clippings. One reporter, who said she had interviewed shoppers at a Washington, D. C. chain store, found that shoppers were very enthusiastic. A survey of shoppers in New York stores immediately after the city's dual pricing law took effect found that 70 percent of the shoppers interviewed were aware of the system, 43 percent fully understood it and 18 percent said they had used it.

A <u>Supermarket News</u> <u>1/</u> article outlined the findings of interviews at a Boston based chain where 500 customers who had shopped at unit pricing test stores were interviewed. According to a spokesman for the company, 67 percent of those questioned said they did feel a need for price-per-measure information. However "only 24 percent of all people interviewed were aware of the dual price experiment in the stores, and only 13 percent could name one or more of the test items." A company official also noted that "higher income

---

<u>1/</u> "Dual Pricing Impact Slight in Stop and Shop Poll of 500 Shoppers", report of a speech by Carol Goldberg, Vice-President, Marketing Services, Stop and Shop, <u>Supermarket News</u>, June 22, 1970.

people are significantly more aware of the unit pricing concept... (than) customers at lower income area stores."

An article by Joseph Coyle in the Progressive Grocer 2/ magazine gave an excellent summary of unit pricing studies by three chains and the following information was excerpted from that article.

A Chicago firm found that when unit pricing was tested for several weeks in three stores there was some interest among shoppers, but usage was minimal. Nevertheless, the company decided to expand the unit pricing to all its Chicago stores in order to get a better reading on costs and use. The initial test used calculator wheels in one store, information banners in another and shelf tags in a third. The shelf tag system was the one adopted for use in all stores on about 1,000 items.

In October 1970 the company released a study comparing the results of interviews with shoppers in April at the three test stores and in June after the program was expanded and backed by advertising and in-store promotion. The findings showed that 63 percent of the shoppers interviewed in June were familiar with unit pricing compared to only 47 percent in April. By June, "45 percent of the customers questioned had used the system one or more times (almost the same as the 44 percent in April)... Yet a survey taken in July when the system had been expanded in terms of both stores and products, showed that only 5 percent had actually changed a shopping decision on the basis of (the unit pricing system)."

Furthermore, a seven-month product movement study showed "no indication of movement to larger sizes. In some cases movement was to smaller sizes and there was no measurable evidence of movement to private labels." According to that company, the cost of unit pricing is about $1,000 a year per store.

Another study, conducted by a university research team to evaluate a unit pricing experiment in six stores in Toledo, showed "less than a third of customers using the system, higher use among the more educated and affluent, and neglible changes in buying patterns."

Costs to the store were examined closely. The general conclusions seem to be that, while there are costs involved in unit pricing, these may be manageable for large, multi-store operations with substantial sales volume but could be crippling for smaller stores.

2/ Coyle, Joseph, "Dual Pricing", Progressive Grocer, February 1971, pp. 46-52.

By contrast, another study conducted for the nation's second largest chain, was more optimistic. This research was also conducted by an outside team. According to the report, 31 percent of the shoppers interviewed had used the unit pricing in the test stores; most continued to use it on a regular basis; and most users found it helpful in saving money. Although the research team did not collect data on costs to the retailer, company spokesmen indicated that savings due to better stocking, ordering and store control would offset any unit pricing costs.

Now, where does this leave us with regard to unit pricing? Confused? I was--but I tried to draw a few conclusions from the six-inch stack of papers on my desk.

First of all, some consumers do use and understand unit pricing. While these shoppers are a minority of those who have been interviewed, they are a substantial minority. And the number of shoppers who use unit pricing is increasing and may continue to do so, as the concept becomes a routine part of grocery shopping.

It does cost a store something to install and maintain unit pricing. Per store estimates range from next to nothing to over $2,000 a year. In fact, the costs probably do vary. They may be offset to some extent by savings due to better inventory control. And, if consumers like having unit pricing, some of the cost must be measured against consumer satisfaction.

A store that does not have access to a computer would find the time, labor, and equipment cost of installing unit pricing prohibitive. Most of the legislation introduced so far at both Federal and State levels has recognized this fact and provided exemptions for smaller store operations.

Before unit pricing was generally used, predictions were made that substantial shifts to private brands might occur when the price advantages became more apparent. To date there has not been any evidence pointing to this, but there is evidence of switching to different sizes within the same brand. One shopper was reported to have said that she had switched to a smaller size when she saw that she really wasn't saving money by lugging home the largest one available. Others seemed to have switched to larger sizes when genuine savings have become apparent.

The primary purpose of unit pricing is to help shoppers find the best buy, at least as far as the price factor is concerned. Hopefully, it could be most useful to shoppers whose financial resources are limited. But most of the studies done so far seem to indicate that there is more use of unit pricing among shoppers at higher income/educational levels. There was one important exception to this pattern. According to the report of the Toledo test, "those least likely to understand it are disadvantaged groups, such

as the old and those of minority races... (but) those who use it most when they understand it are families with small children and black families." In this study newspaper and television advertising and grocery bag stuffers were used to explain the unit pricing system. The author of the Progressive Grocer 3/ article concluded that educating minority consumers might not be a simple proposition, but it might be the most rewarding when done successfully.

While shoppers do not seem to be stampeding to stores that offer unit pricing, or even making use of it regularly when it is available, its importance as a potential shopping aid should not be underestimated. For most shoppers, price is only one factor to be considered in a buying decision; for others, price may be the dominant factor. For still others the total cost of the item may be the only important factor--a three pound can of coffee may be a better buy than a 1 or 2 pound can in terms of cost per pound--but the total cost may be too high for a limited budget to cover. But the fact that price comparisons can be made is important. When the shopper has an option among sizes and brands, she has the unit price available to assist in making a choice. The task now is to help shoppers understand how to use unit pricing and, on the other side of the coin, perhaps come up with a better shelf tag system for the prices. The ease with which customers can make price comparisons among brands or sizes may depend somewhat on how products are grouped on the shelf. The computer printed labels now being used in many stores may make unit pricing a fairly simple task from the store operator's viewpoint. But from a customer's viewpoint reading it may not be so simple. A bright, bold lettered tag may make it easier for consumers to use unit pricing than the computer printed labels. According to a spokesman for the company now testing different tags in two divisions, time, not necessarily cost, is the big problem with the more colorful tags. Price changes or new tags can be made rapidly when they come directly from the company's computer. Substantial delays may be encountered when an outside firm must receive price data, print tags and return them to the chain.

To sum up, unit pricing now is a fairly well accomplished fact. What remains is the task of making it more understandable and useful--a more usable shopping aid for consumers.

Now let's turn our attention to another new phrase "open dating"--one we, in ERS, have been directly involved in studying.

The phrase open dating generally refers to any date on a packaged food product that can be read and understood by the shopper. The date may be shown alpha-numerically--FEB 23, or in numbers only--2-23, or 0223. It may

---

3/ Ibid.

or may not include the year and if it does, 1972 may be designated only as a 2. The date may represent any one of a number of things; let me list these for you so we will have a common definition of terms.

1. Pack date--the date of manufacturing or processing or final packaging. It is a known date some time in the past.

2. Pull date--the last day a retail store may offer the food for sale. The date is designed to allow the consumer a reasonable amount of time to store and use the product at home, even if she bought it on the pull date. How long the product should be offered for sale and how much home storage time allowed is determined by the processor based on his knowledge of his product and its shelf life, and his knowledge of his consumers.

3. Quality assurance or Freshness date--with this date the processor is telling the consumer that until the date shown, the product will be of the same quality as when it left the processing plant. Sometime after that date, and there will always be a cushion of time allowed, the product will no longer be of optimum quality. This does not say the product will be unacceptable--it is saying that the processor would like you to use the product while it is at peak quality.

4. Expiration date--this generally means "Do not use after date shown," and is the most difficult date of all to determine. With the possible exception of yeast and yeast products, it is almost impossible to tell when a product will not live up to your expectations. Quality deterioration is a curve--a product is not good today and bad tomorrow--or even good this week and bad next week. By the time most products deteriorate from age to the point where you should not use them, they would be so aesthetically unacceptable you would have no doubts about them. Certainly the processor would like to advise you to use his product while it is still at peak quality. Just a note in passing: in many stores where eggs are dated the stamp reads EXP FEB 24. This is not an expiration date in the way we have just discussed. It represents the store's pull date.

The four types of dates I have defined are those most commonly discussed. Of course, the pull, quality assurance, and expiration dates are all determined by assuming that the product will be handled properly.

There are two other types of dates sometimes mentioned. The report of the "Food Stability Survey" conducted by the Food Science Department at

Rutgers University 4/ contains several recommendations on the quality and shelf life of foods. Among these was a suggestion that a date of shelf display be stamped on an item when it is offered for retail sale. This would facilitate product rotation in the store and by the consumer at home. The reasoning behind this recommendation is that since temperature is such a vital quality determinant no preset date, like a pull date, can be a valid measure of quality.

Another possibility is a delivery date. To our knowledge this method is not in use, but shoppers who are asked the meaning of the date on a product frequently identify it as the delivery date. This may be due to the fact that dates on some dairy and bakery products are quite current when the shopper sees them.

Let's spend a moment on the opposite of open dating--code dating. You, and many other consumers, know that most food packages are coded and that some of the codes are exercises in ingenuity. Letters, numbers, or symbols--or combinations of all three--have been used to put information on food packages. Sometimes a color system is used or a key word or phrase is the basis for the code. Other codes are relatively simple--one of the nation's largest retail chains has used numerical pull dates on private label products for years.

Codes usually include production information items like--the plant location, the shift--perhaps even the date and time where the item was produced, and there might also be ingredient information, or raw material sources, and so forth.

Of course, the key word in that list is date. Techniques vary among processors but many of the codes do include a production date, the last day of sale, or suggested shelf life.

The obvious solution to the open vs. code date controversy is to simply translate the code date. But because the information provided varies and because, once translated, it may be of little help to the consumer, and because handling is so important to food quality, the dilemma is not readily solved.

Now that we have the vocabulary let's look at how USDA is involved. One of the first Congressional bills to require open dating was introduced in

---

4/ Food Stability Survey, Volume I and II, Rutgers, The State University, New Brunswick, New Jersey; published in cooperation with Economic Research Service, USDA, 1971.

April 1970 by Congressman Farbstein of New York. It was an outgrowth of work done by a local Washington group and members of the Congressman's staff. On shopping trips in D.C. area supermarkets they found some foods being sold beyond their pull dates. But since most dates were coded, and it seemed that even store personnel were not always sure of the exact meaning, it was impossible for a typical shopper to know if she were buying a product that was out-of-date.

The solution, the Congressman and many others felt, was to require dates consumers could understand. Then the shopper would know what she was buying, and it would be easier for retail store personnel to rotate stock properly. The result of that feeling was H. 14816, the first of many open dating bills introduced in the second session of the 91st Congress. It called for amending the "Fair Packaging and Labeling Act to require a packaged perishable food to bear a label specifying the date after which it is not to be sold for consumption." This is what I described earlier as the pull date.

In July 1970 Congressman Rosenthal of New York, who is vitally interested in many issues affecting consumers, asked USDA for information on the need for, and the economic feasibility of food product dating.

The responsibility for assembling what was then available on the subject was given to us in ERS. The most comprehensive study was the one I referred to earlier done by the Rutgers University Food Science Department. The Rutgers research team assembled several hundred pages of material on food quality and the factors that affect quality changes. Their study was undertaken because the New Jersey legislature then had before it a bill to require the dating of foods. So the State Health Department commissioned Rutgers to determine which foods may be of low quality or create a health hazard if their shelf life runs out before they are eaten. The study team also considered what effect, if any, open dating could have on reducing potential health hazards.

Initially, four quality areas were studied--these were aesthetic, nutritional, functional, and microbial. National health data showed that the causes of food poisoning are not usually processed foods. At least as far as age is concerned, an item would usually have deteriorated to such a point as to be inedible before it would be hazardous.

So the research concentrated on the other three quality areas and, in fact, did not go far beyond the area of aesthetic quality changes. These included color, flavor, and texture--the characteristics most easily evaluated by consumers.

More than 100 major food processors and retailers cooperated in the Rutgers study by providing information on their quality control and coding systems, especially on how they monitored their products. In addition, all available scientific literature on the shelf life of foods under different conditions was examined.

The Rutgers' report presents extensive findings and recommendations and gives specific data for 18 product categories. But perhaps the most important general statement that can be made based on their findings is that, for most foods, temperature is a far more important quality determinant than simply elapsed time. The expected shelf life of a product may be determined--but a given estimate of that life will only be reasonable if the product is handled properly.

Supporters of food dating recognize the importance of temperature--they know that a product will lose quality if it is mishandled. But they advocate the date, as a guide to quality. So, as the first step in our research we decided to study an open dating program already in operation. Last spring we interviewed shoppers at 18 stores of a Chicago food chain where open dates had been used for several months on over 100 products. Generally, the alpha-numeric dating system was being used--that is, FEB 23--which represents the last day the store may sell the product, while allowing for reasonable life at home. Introduction of open dating in these stores was accompanied by newspaper ads and in-store posters explaining the meaning of the date. In addition, code books were provided at the service desk of each store to give code explanations for those products which were not open dated.

Slightly more than half of the 1,700 shoppers we contacted said they were aware of the chain's open dating program. Of the 429 shoppers we interviewed in depth, about two-thirds said they had used the date information at least once. Five item groups accounted for 70 percent of all instances of use of the open dates. These were: bread, milk, refrigerated dough products, other dairy products (such as sour cream, cottage cheese) and eggs.

When we asked shoppers what the date told them about a product, their answers varied widely. Only 20 percent correctly interpreted the date as the last day of sale. Forty-five percent said the date represented some time in the past--for example, date of manufacture, packaging, delivery, or display although all products in the program carried a future date--the last day the store may offer the item for sale. Twenty-two percent said that the date indicated the end of the product's usable life--a misinterpretation that could lead to a lot of perfectly good food being wasted if consumers followed through on it. Perhaps the most important group of answers came from 38 percent of the shoppers--they said quite simply that the date tells either how fresh an item is or just that it is fresh.

From the variety of answers given and the frequency of answers involving past dates, it seems that shoppers do not look carefully at the dates on the items they purchase. Since so many women interpreted them as simply indicating freshness, we would conclude that because the date information is available, the shopper is assured that the food will be fresh. The shoppers' lack of concern about the precise meaning of codes or dates was confirmed by their lack of interest in the code book. Only 9 of the 429 women interviewed in depth had ever used the code book. Of course, we would probably all agree that looking up product codes while doing the weekly grocery shopping is not the most convenient way to get information.

If a shopper mentioned having used date information for a specific item, we asked her a number of questions about it. We found that only for refrigerated dough products was there any substantial agreement among shoppers as to the meaning of the date. These products, unlike most of those included in the open dating program, have been marked with a readable date for years. In most instances, the manufacture has also included some storage instructions and a statement that, for best results, the item should be used before the date shown. Two-thirds of the shoppers who said they had used date information for refrigerated dough products said the date represented the last day the item should be used. This was the single most frequent answer given for any product.

As far as influencing their use of an item, many shoppers said the date had no influence at all. Some said they would use the item promptly or before the date shown. They rarely said they would dispose of an item if they did not use it before that date.

Although this study in Chicago gave us a picture of consumers' awareness and use of date information, we still had no data on what open dating might cost the store. As was the case with unit pricing, many objections to open dating were based on increased costs of doing business--increases that we might expect to see passed on to consumers.

There are two possible areas of cost in open dating--implementation and increased loss. Implementation costs probably would not be too drastic since equipment changeovers would be a one-time cost. In some cases, only a minor change is needed to convert from a numerical to alpha-numerical date. But, on the loss side, some concern has been expressed that readable dates on products could lead to selective buying by consumers. Rejection of older but perfectly acceptable products could increase waste and affect the cost of doing business.

To try to get the necessary information on cost, we have recently completed the collection of data on an open dating experiment with a chain in Ohio. While we were studying the economic side of open dating, the Consumer Research Institute interviewed consumers to learn their opinions of the freshness of foods they were buying.

Although we are still in the process of analyzing these data, I'd like to give you a brief idea of the kind of information we collected and some preliminary findings.

Seven test stores and two control stores participated in the open dating test. Pull dates were used on several hundred items in four stores in Hamilton, Ohio, and pack dates were used on the same items in three stores in nearby Middletown. Also included were two stores in Cincinnati that had been concentrating on improving in-store handling practices. In all of these stores record keeping for open dated items was initiated about a month before open dating was introduced, and continued on a daily basis for another eight weeks. The data for 14 items, including fresh and processed meat, dairy, bakery, and produce products, will be evaluated carefully. This will determine whether the introduction of open dating had any effect on the number of items that had to be reduced in price or thrown away. The store managers recorded both the number of items displayed each day, and the number removed. In addition, they noted the reason an item was removed, how it was handled, and the cost involved.

Our preliminary analysis of the data from the four product groups--meat, produce, dairy, and bakery--shows that the introduction of open dating did not increase the amount of loss in the test stores. In fact, in all nine stores product losses, as a percent of gross sales, declined during the four week pretest period and continued to decline when open dating was introduced during the fifth week. Losses continued a downward trend, and did not return to pretest levels during our study. This downward trend was evident not only in the stores where open dating was introduced but also in the two where there was no open dating. There does seem to be some variation in losses by product group--for instance, the percent of loss in the meat department was quite constant week to week while by comparison the percents for bakery fluctuated considerably.

It is quite possible that some of the reduction in loss in all stores was due to more efficient practices encouraged by the record keeping--a by-product of the open dating experiment. But what is important is that the introduction of open dating did not increase losses. Instead of costing the store money, the open dating experiment and the record keeping it necessitated, decreased losses.

The obvious question then is: What happens after the experimental, record-keeping stage? Our guess is probably not much. Readable dates would simplify and encourage good stock rotation and this, in turn, helps the store by minimizing markdowns and product waste. Since trend lines seem to be the same in all nine stores, we would assume consumers were not buying selectively during the experimental period. There is no reason to believe this would change drastically at a later point.

Apparently the company involved is convinced that open dating will be an asset to them. Since the end of the experiment, they have announced that open dates will be used on all their manufactured private label products.

So where are we? First of all we are still faced with pending federal legislation, notably S. 3083, that would require pull dates.

Secondly, there were, at last count, more than 30 bills pending in state legislatures to require some type of dating. If all of these were to be enacted--and admittedly, that is highly unlikely--conflicting rules would be in effect, even in neighboring states. But, think for a moment of the food processor's difficulties if only two states should have conflicting laws; if, for example, Maryland should enact the bill they recently had hearings on which would require the date of packaging while New York City's current law requires pull dates.

From the consumer's viewpoint, having an open date on a product may be helpful, particulary for home storage and use; or, simply having a date, regardless of the type used, may be an assurance of quality. As one industry spokesman commented, it is one way of letting the shopper know that the retailer--or processor--has nothing to hide.

Costs do not seem to be a major drawback. Unlike unit pricing, there are no maintenance costs to open dating. Unless customers buy selectively, and there's no evidence of that yet, only start-up or changeover costs are a factor.

With all these positive words I have given you, why isn't open dating more widespread? Well, it is spreading. New retail food chains seem to be added to the list everyday--today's figure is 60. Some major food processors have initiated it, others are studying it carefully, or are awaiting further research findings to know which direction they should go. I hope we will see more voluntary efforts. And, of course, there is the possibility that open dating will be required through Congressional action.

I'd like to close with a reminder. Unit pricing and open dating--like any other shopping aids--must be understood to be helpful and must be used in perspective. Time is a dependent variable in food quality, temperature is the independent variable. The date on the package is only a guide to quality--not a guarantee. The unit price is only one factor in a buying decision where family needs and preferences must be considered. These two may be shopping aids but they are just two pieces of the total jigsaw puzzle picture of food buying.